123 Print v1.1x

User Manual

Visualize…printers with intelligence

Realize…123 Print

i. Preface

Background

123 Print is developed by MCL Technologies to bring intelligence to Datamax printers.

Copyright statement

123 Print v1.1x User Manual

Table of Contents

1. Primer

Overview

Document introduction

This document is a User Guide for 123 Print V1.x. It is divided into several chapters to give you a thorough understanding of the use of 123 Print.

- Chapter 1 – Primer
- Chapter 2 – Getting Started
- Chapter 3 – Creating a Project
- Chapter 4 – Designing a Label
- Chapter 5 – Using Processes
- Chapter 6 – Simulating Your Project
- Chapter 7 – Deploying a Printer Project

Accompanying appendices provide supplementary information.

Chapter 1 introduction

This chapter is a Primer that explains the basic concepts of 123 Print and introduces you to its purpose and the philosophy behind it.

The goal of this Primer is to give you an understanding of the:

- General capabilities of 123 Print
- Kinds of labels you can print using 123 Print
- General project flow behind the creation of static and dynamic labels

Topics

This chapter covers the following topics:

123 Print Purpose

The purpose of 123 Print is to help you create and deploy simple printing applications for your Datamax Printers. 123 Print manages one printer at a time. Compatible with Seagull's BarTender V7.72 and above, it also allows you to easily create and integrate new printer labels into your application.

1.1. What is 123 Print

General introduction

This section gives an overview of 123 Print, its purpose and its benefits.

123 Print

123 Print is a design environment to create simple, stand-alone applications that run on Datamax printers.

123 Print is an all-in-one product for:

- Label design through integration with Seagull Scientific's BarTender
- Data capture design
- Application simulation and debugging
- Application deployment to drive the printing process

123 Print lets you create printer applications that can initiate an interactive screen dialogue with the user. This allows the user to input variable data that is then merged with the labels you print.

123 Print is integrated with Seagull's BarTender for easy addition of multiple BarTender labels into your printer application.

Note: If you are interested in connectivity with host systems or database access to BackOffice or ERP systems from your printer application, consider using MCL-Designer for Datamax printers. As a component of MCL-Collection, MCL-Designer allows you create printer applications with easy host integration.

Purpose

The purpose of 123 Print is to:

- Make your Datamax printers intelligent
- Quickly and easily create simple applications to run on your Datamax printers
- Provide a full application creation environment including label design through integration with Seagull's BarTender

Benefits

123 Print:

- Intelligence is in the printer thereby eliminating the need for an intermediate PC application server to create and send labels to your printers.
- Inputs from barcode scanners, weight scales, etc. are handled directly on the printer.
- Variable input data from, for example, barcode scanners can be inserted into labels and printed directly from the printer.
- Integration with BarTender means you can quickly create new labels or import existing BarTender labels into 123 Print for use with your 123 Print projects.
- Multi-purpose, multi-label projects for your Datamax printers with up to 50 screens per selected label.
- Ability to create friendly printer user interfaces easily.

1.2. Sample Labels

General introduction

This section shows some sample labels to give you an idea of the kinds of labels you can print using 123 Print projects on Datamax printers.

Sample labels

The sample labels shown here were designed using Seagull's BarTender label creation software.

123 Print provides the capability to associate and print variable data on labels.

Consider the sample labels shown below. The labels on the left are templates that would be saved on your printer with your 123 Print project. The labels on the right show the actual label that will come off the printer after the 123 Print project inserts the variable data into the template and initiates a print of the completed label.

Your 123 Print project can receive variable data from many sources—barcode scanner input, weight scale input, user keyboard input, lookup files, etc.

1.3. Project Flow

General introduction

123 Print structures your project flow using a combination of screens and processes that you create via 123 Print's **User Interface** and **Labels**.

This section gives a high level view of the flow and interrelationship between the screens that are created via the User Interface and those created via Labels.

With User Interface, you can print any static label you want.

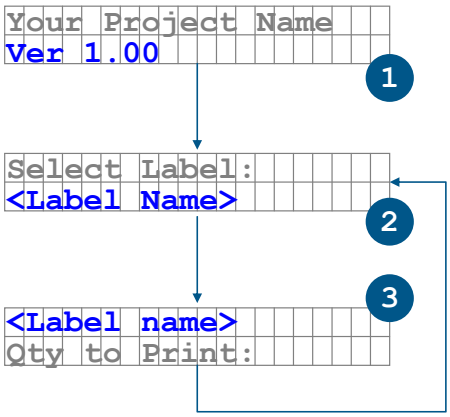
With Labels, you can change a static label into a dynamic label by merging in variable data from data collection, user screen prompts, and processing logic.

Please reference Section 3.2 – User Interface and Section 3.3 – Labels for detailed information about these functions.

User Interface

Every 123 Print project follows a pre-defined screen flow. You configure these screens through the User Interface function. This is the only screen flow function you need if you want to print static labels.

This core flow is depicted here.



- The first screen 1 is a Welcome screen.
- The second screen 2 is the Select Label screen.
- The third screen 3 is the Quantity to Print screen.

These screens are displayed in a black font on the Datamax printers.

When your 123 Print project is run on the printer, it first displays the Welcome screen. It then goes into a loop alternating display between the Select Label screen and the Quantity to Print screen.

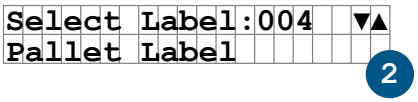
Your application will loop infinitely between the second and third screens until you press the Menu (ESC) button on the front panel of the Datamax printer.

As you design your project in 123 Print, you have the option to customize the Welcome screen. By default 123 Print proposes your project name for the Welcome screen.

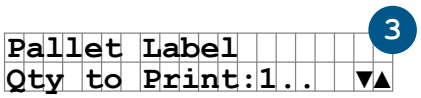
You then add the labels you want to be able to print from your project. When your project is run, this list of labels is presented on screen (2).

The user presses the Fwd ↑ and Rev ↓ buttons on the printer's front panel to scroll through the list of available labels and, by pressing the Ent ↵ button, selects the label that is required for a given operation.

Here is an example of what screen (2) might look like on a printer when the fourth label in your project is a label for pallets:



In this case, the third screen will look like the screen below. Notice that the label name, Pallet Label, from screen (2) has automatically been displayed on the first line of screen (3).

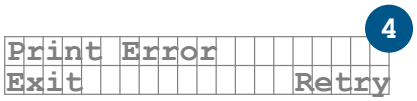


The user presses the Fwd ↑ and Rev ↓ buttons on the printer's front panel to increment or decrement the quantity of the label to be printed. The user then presses the Ent ↵ button on the printer's front panel to initiate the printing. The label is printed in the quantity specified. The project then loops back to display screen (2) again. The user can select the same label for printing again, or may select a different label to print.

This is useful in pallet building, for example. You may want to print many item labels. Then, when all the items on the pallet have been labeled, you can print a label for the entire pallet. In this case, the user selects the item label many times and then finally selects the pallet label once. The user then returns to printing item labels for the next pallet build.

A fourth standard screen 4, a Print Error screen, exists. It is not part of the 123 Print application logic but rather is displayed by the Datamax printer whenever a print error occurs after 3 above has been initiated.

The default print error screen is as shown here



This message will be displayed, for example, if the label roll is out of labels.

The User Interface function allows you to customize this error message.

Labels

If you are only concerned with static labels, you only need to use the Labels function to identify the static labels you want to include in your project.

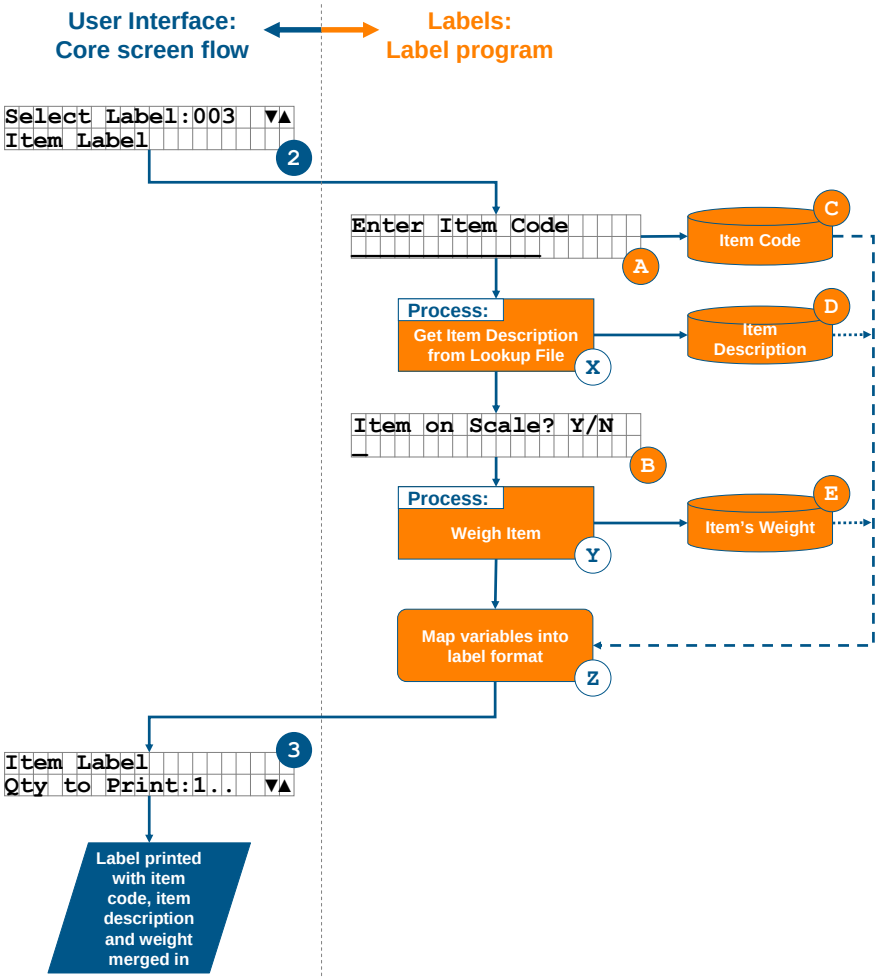
If, however, you want to create dynamic labels, you will want to take advantage of the full capabilities provided in the Labels function.

The flow described above under User Interface is not sufficient to include variable data on the label. Consider an item label, for example. You want to print an item label with an item barcode, an item description, and an item weight. However, you do not know in advance which item, the item description, or the item weight (fruit, meat, etc.) for the label to be printed. You want to collect this information and merge it with your label format at the moment you print the label.

123 Print allows you to design this capability into your project. It allows you to create a series of screens for user interaction, and implement a series of processes for data manipulation or peripheral communications. Since each label may involve a different set of variable data, these screens and processes are associated with the given label in what is called a **label program**.

Using the Labels function, you can design a series of screens and processes to collect data that you then merge as variables into the label to be printed.

The following diagram depicts the relationship between User Interface created screens and flow, and Labels created screens and flow.



User Interface:

- The left-hand side of the diagram shows the core flow created by User Interface. User input is required on screens 2 and 3

Labels:

- The right-hand side of the diagram shows the flow of a label program to capture the variable data needed to complete the item label selected at 2
- User input is required on screens at A and B
- The item code entered in A is saved in a variable at C
- A process at X is used to browse through a lookup file to get the item description for the item code entered in A
- The item description is saved in a variable at D
- When the user indicates at B that the item is ready to be weighed, a process at Y is used to read the weight scale and save the item's weight in a variable at E
- Label Mapping is used at Z to merge the variable data saved in C, D and E with the label format for the item label
- The variable label information is then passed back to the User Interface function at 3 for printing

User Interface and Labels relationship:

- The selection of the item label at 2 starts the related label program depicted on the right-hand side of the diagram
- When the label program is finished, it passes control back to the User Interface at 3 to print the label

2. Getting Started

Overview

Chapter 2 introduction

This chapter describes the installation and setup of 123 Print.

Topics

This chapter covers the following topics:

2.1. Installation

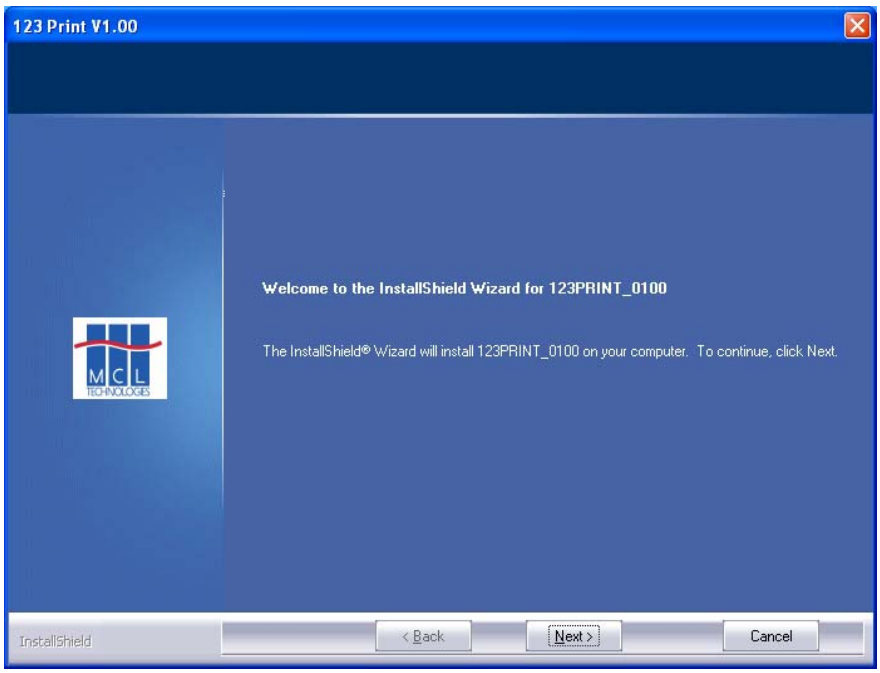
General introduction

This section describes how to install 123 Print.

Installation

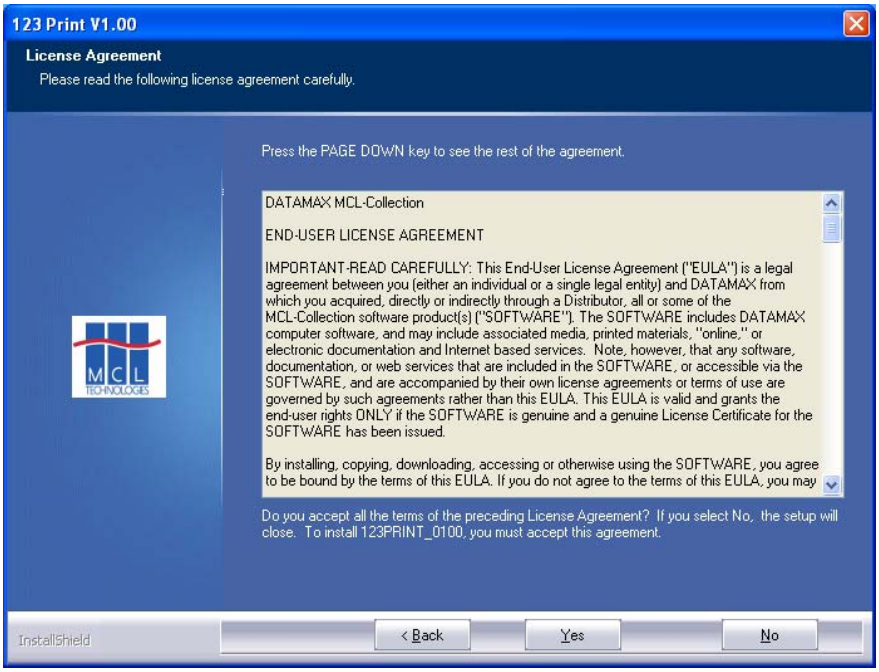
1 **Double-click** on the 123 Print **installation executable** which you have downloaded. The default folder in which 123 Print is installed is C:\123Print

A welcome screen is displayed as shown below



2 Click **Next** to proceed with the installation

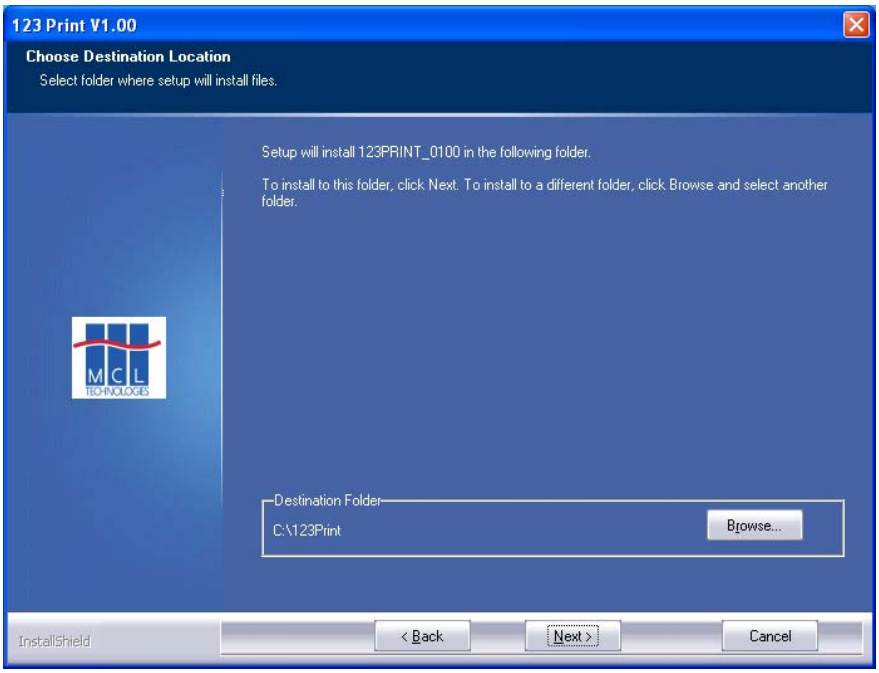
An end-user license agreement is displayed as shown below



To accept the license terms and proceed

3 Click **Yes**

As shown below, a screen is displayed prompting you to enter the location where you want to install 123 Print.

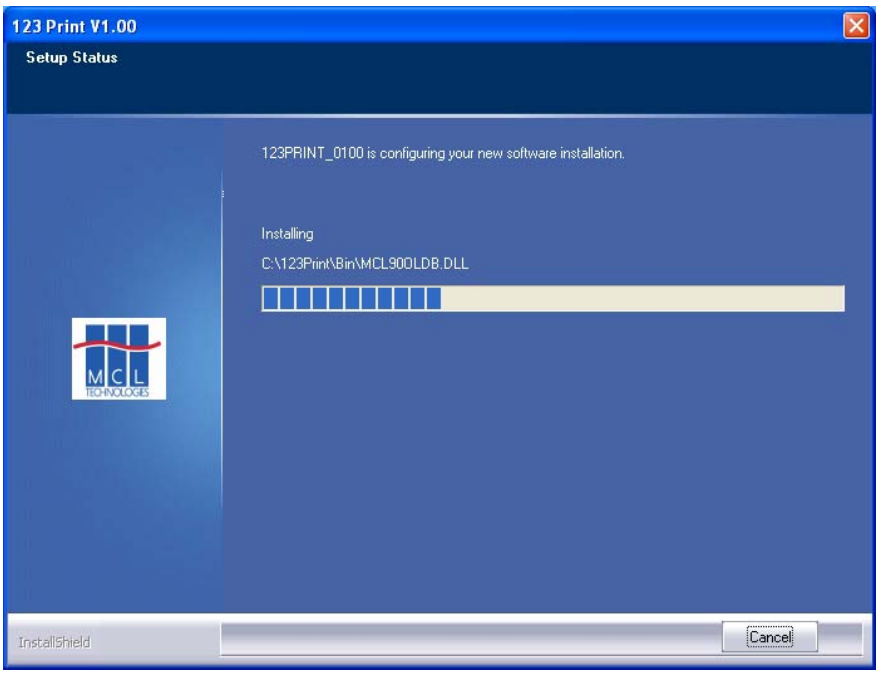


4 Click **Next** to use the default folder for your installation, or

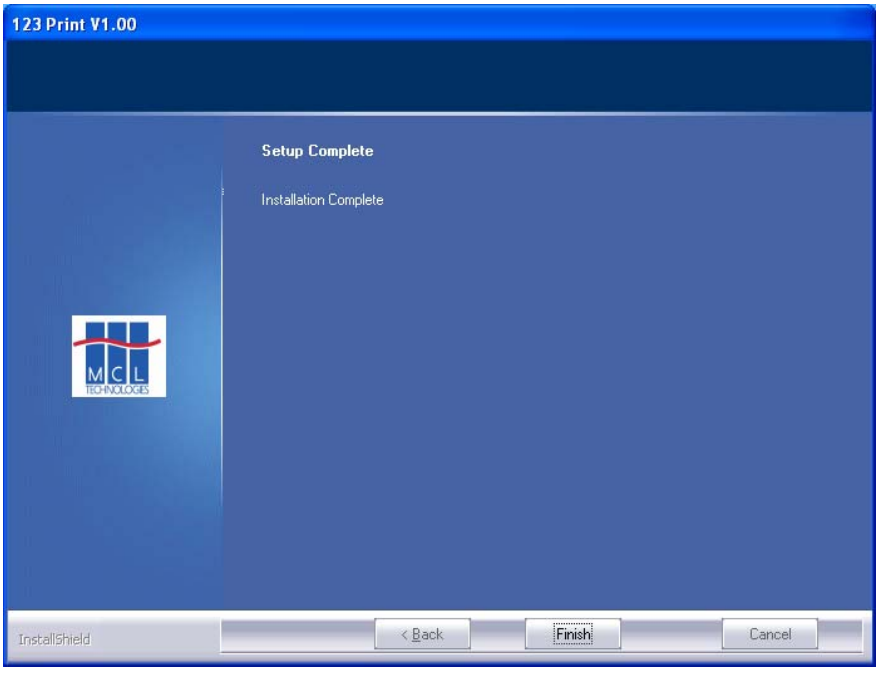
5 **Edit** the entry or **browse** for the folder where you want to install 123 Print

6 Click **Next**

As shown below, a screen is displayed to show you the progress of the installation



The following is displayed when installation is completed



7 Click **Finish**

Starting 123 Print

Once 123 Print is installed, start it by:

1 **Double click** on the 123 Print shortcut icon on the Windows desktop

The 123 Print splash screen is superimposed on the 123 Print environment

2.2. Activation

General introduction

This section describes the activation process for 123 Print.

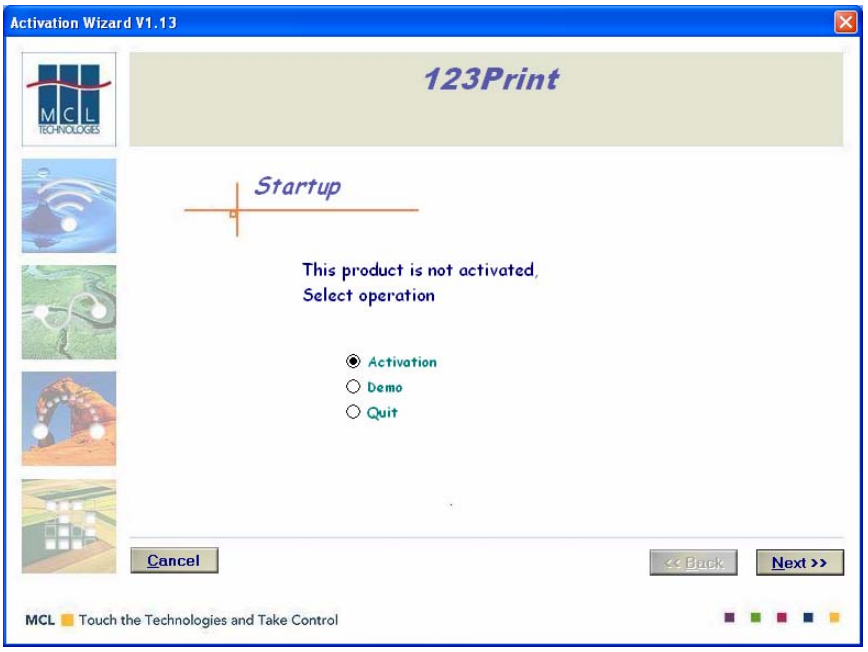
During the activation process you will be prompted to choose between a Software Activation and a Hardware Activation for your 123 Print license. Be sure to understand the benefits of each method and the consequences of choosing one method over the other.

Be sure to make your choice carefully. The activation method you choose **cannot be changed** at a later stage.

Activation

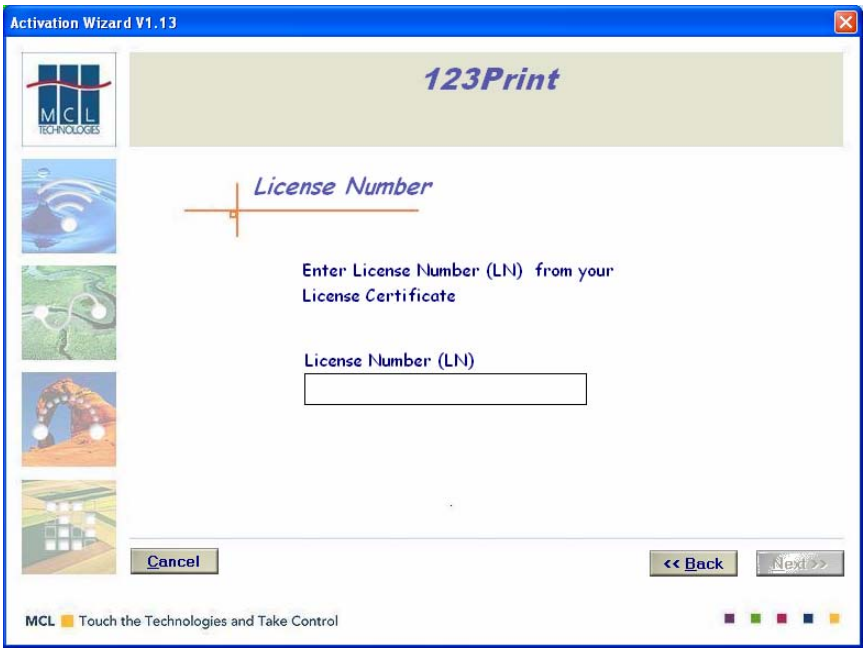
The first time you run 123 Print, you will be prompted to **Activate** the software. To do this, you will need to have the License Certificate ready which you have received, by email, when you ordered 123 Print.

1 Get out your 123 Print **License Certificate**. Please see Appendix A for a sample certificate.

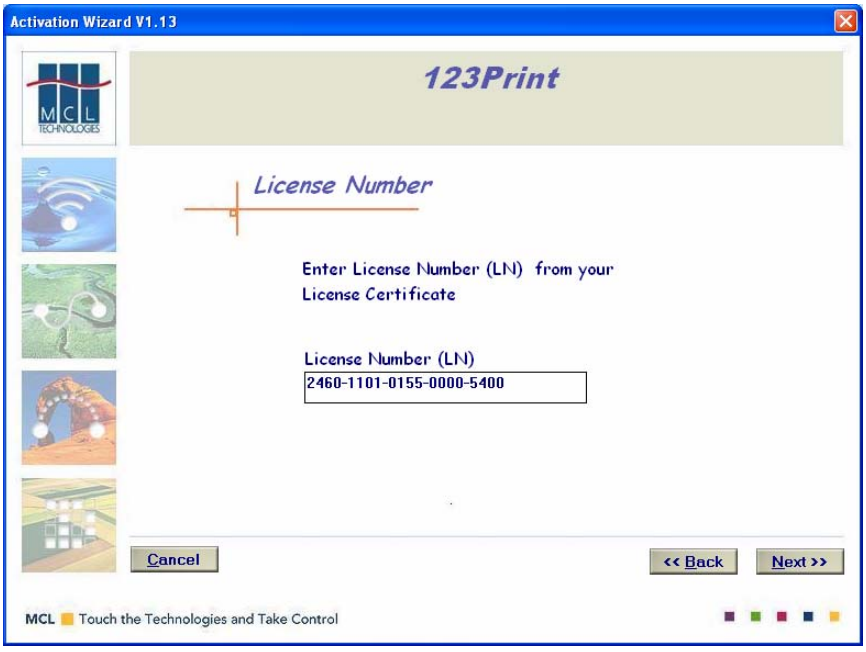


2 Click **Next** to begin the Activation Process.

Note: No activation is required to run the software in demo mode. However, 123 Print has reduced capabilities when it is run in demo mode. For example, you cannot download a project or execute a script.



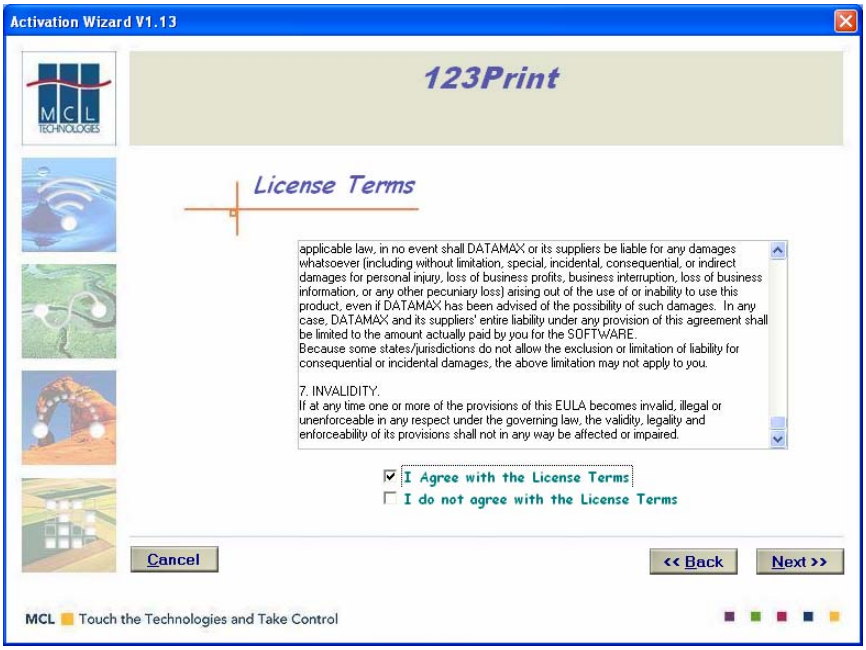
3 Enter the **License Number** found on your **License Certificate**



4 Click **Next**

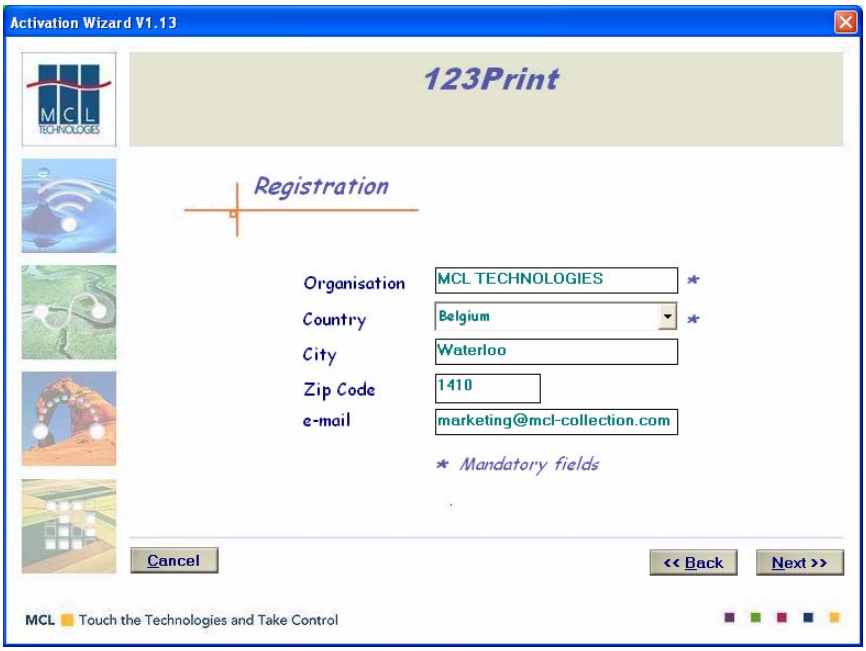
End-user license agreement

MCL's End-User License Agreement is displayed as shown below. Before proceeding, you must read and accept these license terms.



5 **Read** and **scroll down** to the bottom of the terms
6 Check the **checkbox** to accept the license terms
7 Click **Next**

The 123 Print software registration form is displayed



8 Enter the **details** of the company to whom the License should be registered
9 Click **Next**

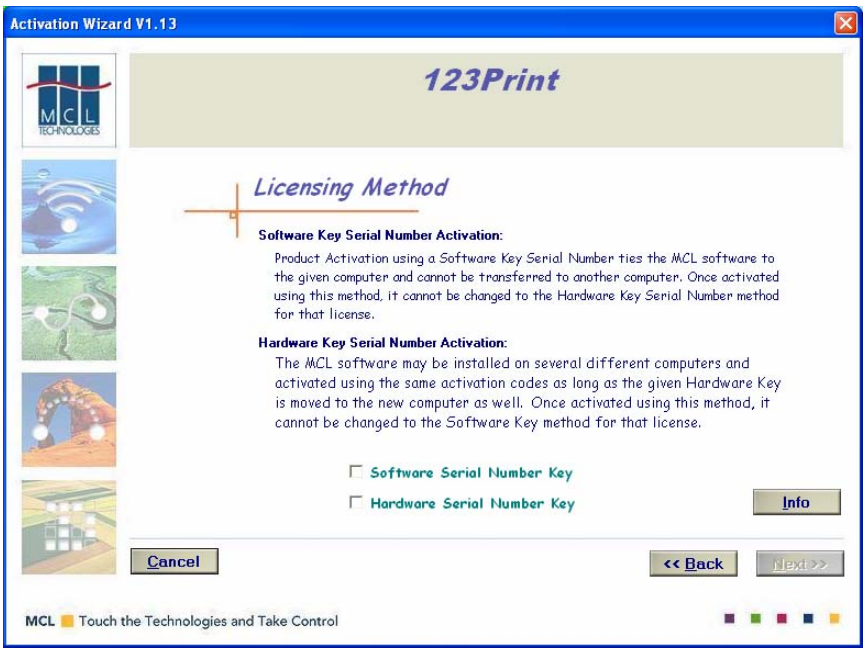
Note: Only Organisation and Country are compulsory fields. However, the more details you provide, the easier it will be for MCL Technologies to provide technical assistance in the future, should assistance be necessary.

Software versus hardware activation

The next step is to choose between Software Activation and Hardware Activation.

This choice is **very important** as it **cannot be changed** at a later stage.

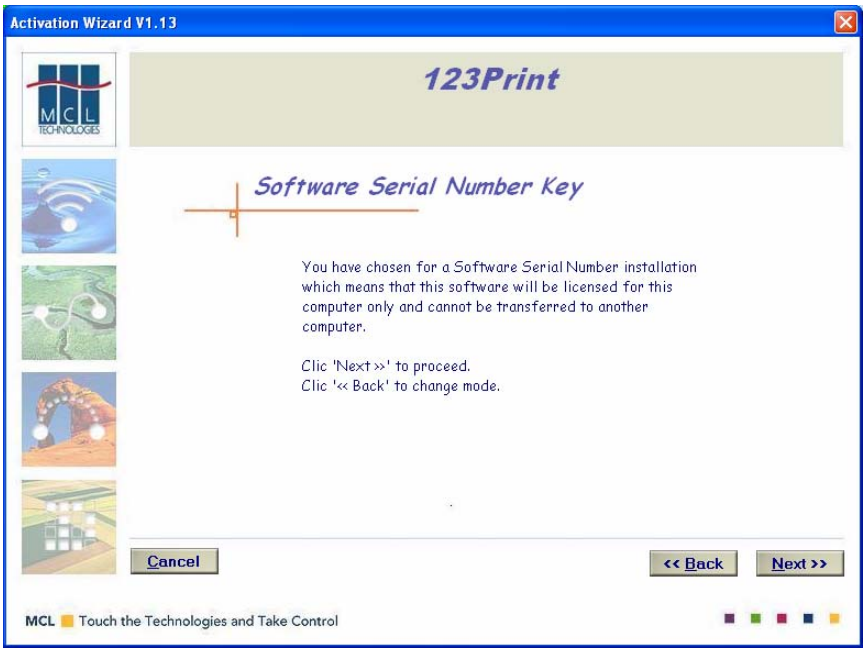
- **Software Activation**: Using this method of activation, 123 Print computes a Serial Number from various components on your PC. 123 Print then ties your license number to this computed Serial Number. Thus, your software becomes **PC Dependent**. You will **not** be able to transfer your licensing details over to a different PC if you want to install and run 123 Print on a different PC.
- **Hardware Activation**: This method of activation requires the purchase of a Hardware Serial Number Key. Using this method of activation, 123 Print ties your license number to the serial number of your Hardware Key. Thus your software becomes **PC Independent**. This means you **can** install and run 123 Print on a different PC at anytime, providing you are able to plug your Hardware Serial Number Key into the other PC. The Hardware Key must be present for the software to run.



Once you have made your choice between Software and Hardware activation:

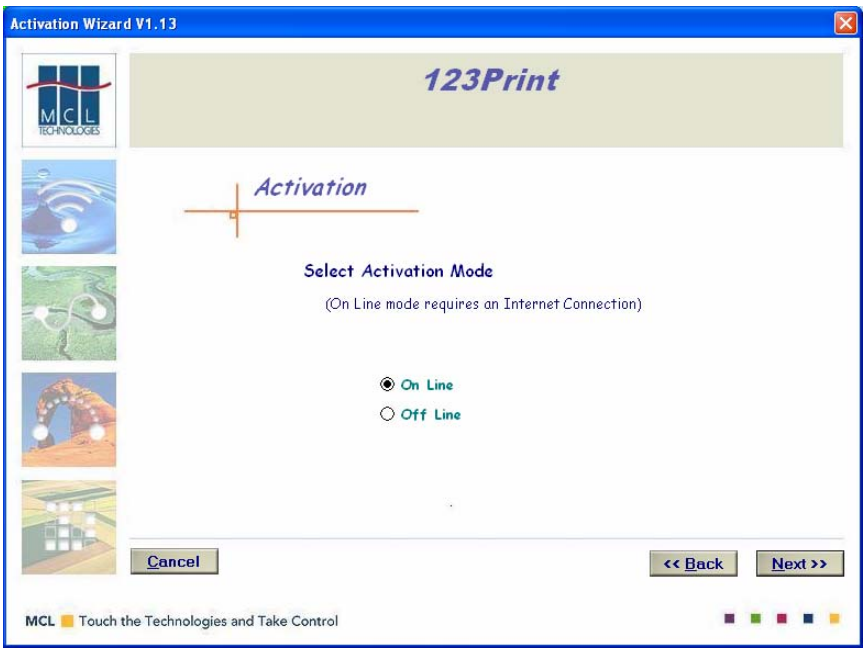
10 Check the appropriate **checkbox**
11 Click **Next**

You are prompted to confirm your selection as shown below



12 Click **Next** to confirm and proceed

The Activation mode screen is displayed as shown here

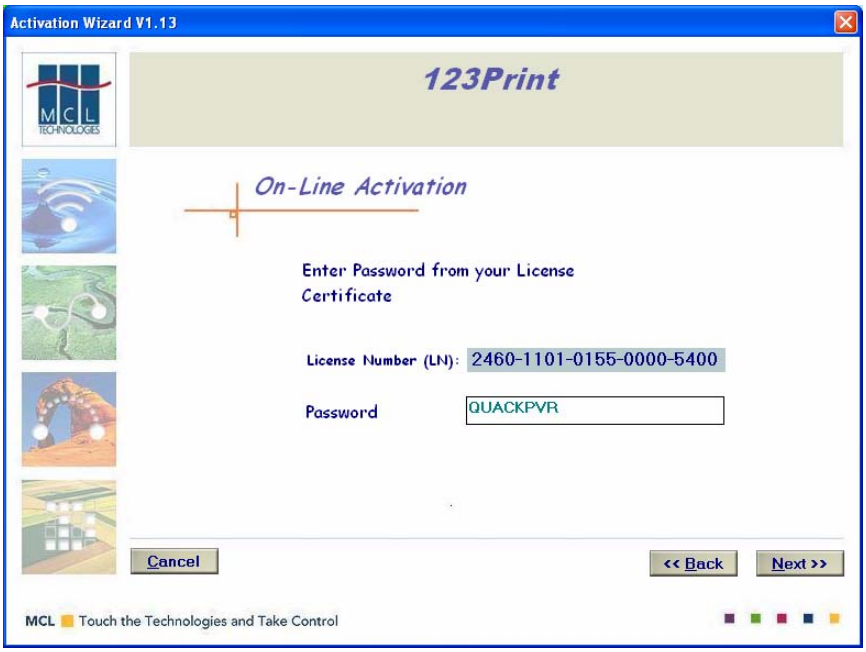


Indicate if you want to use on-line or off-line activation
13 Click the appropriate **radio button**
14 Click **Next**

Your system needs internet access for on-line activation to be possible.

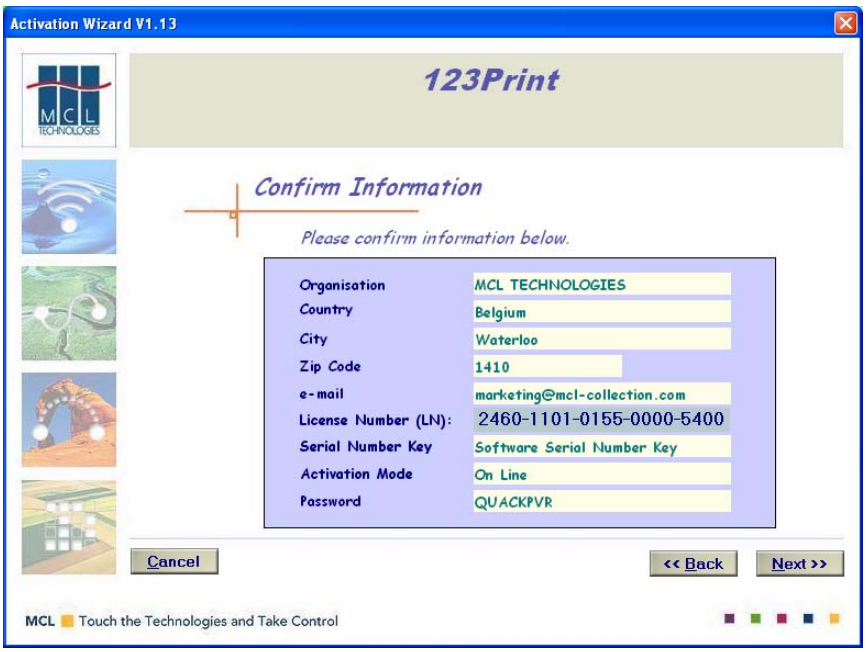
This example uses on-line activation. Consequently, the On-Line Activation screen is displayed as shown below.

The off-line activation mode will step you through the activation process in a similar fashion.



15 Enter the **Password** found on your **License Certificate**
16 Click **Next**

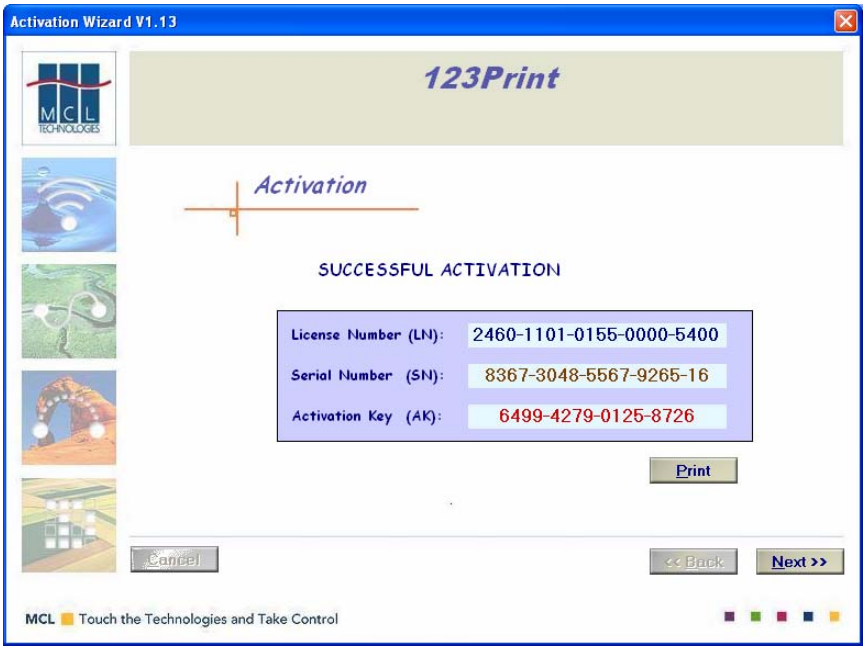
You are prompted to confirm that your registration information is accurate



17 Click **Next** to confirm the details you entered on the previous screens.

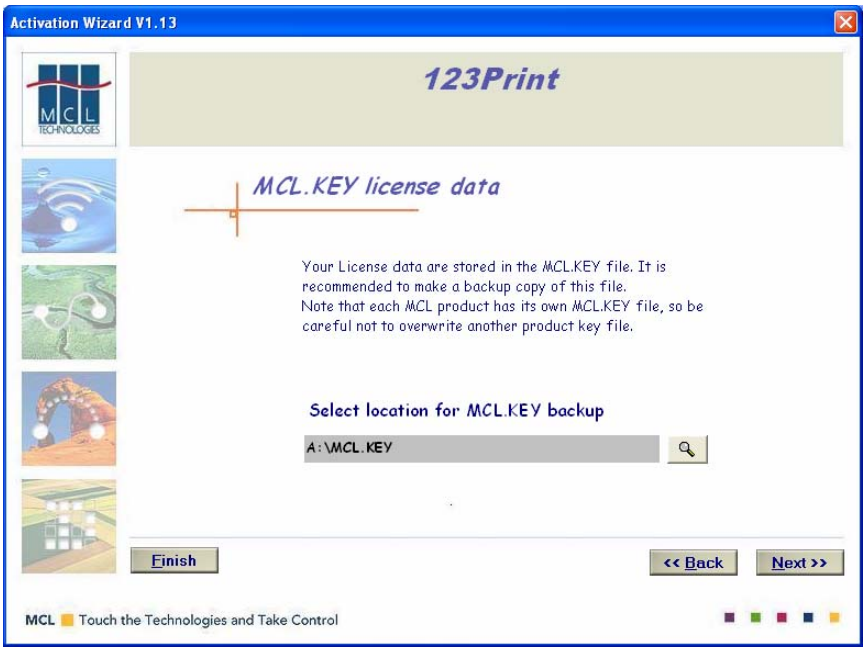
123 Print now connects to MCL's Licensing Server and records your details on the server. The Licensing Server then returns an Activation Key. When the Activation Key is received, your software is ready to be used.

An Activation successful screen is displayed as shown below.



18 **Print** this information and keep it in a safe place for later use in case of disaster recovery.
19 Click **Next** to validate your activation.

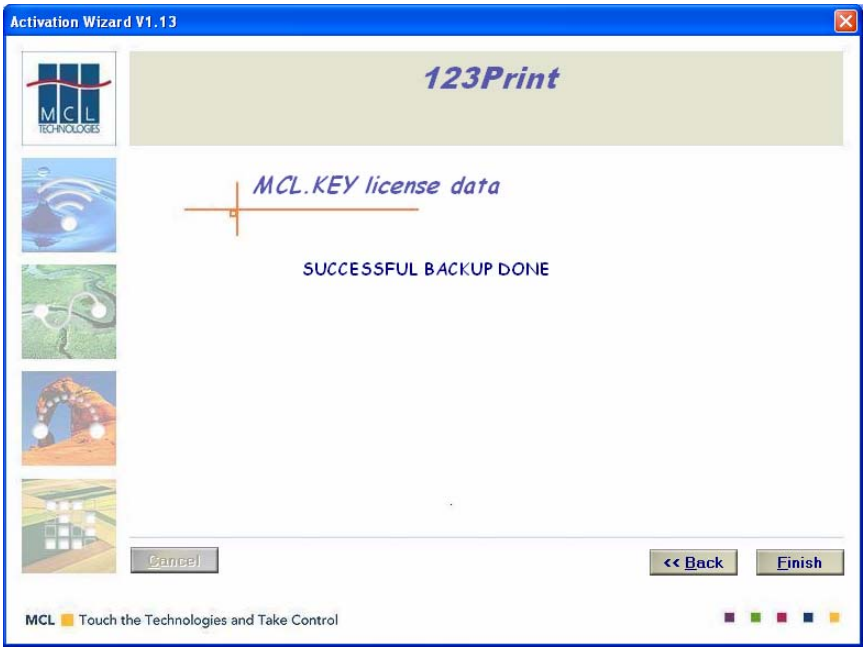
You are now prompted to save a backup of your License Key. It includes your license number, serial number and activation key.



20 **Edit** the entry or **browse** to the **location** where you want your **License Key** backed up
21 Click **Next**

Note: It is very important for you to record and save a backup of your license key. This is the only way MCL Technologies can help you recover your 123 Print license in the event of a disaster.

A successful backup screen is displayed as shown here.

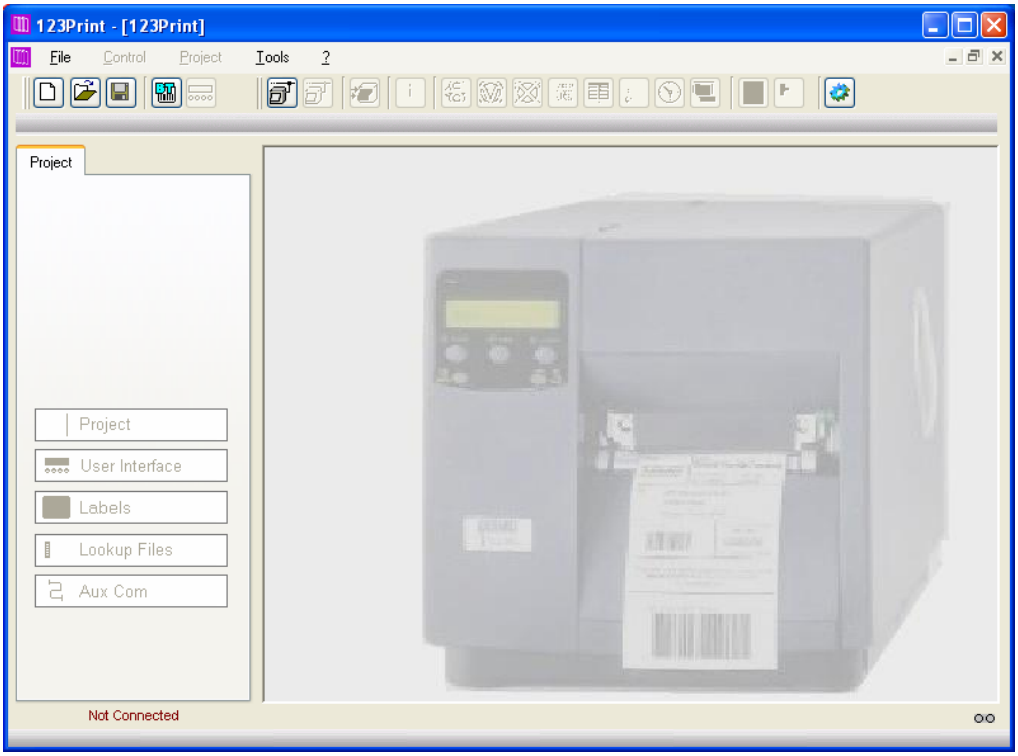


22 Click **Finish**

Starting 123 Print

When the activation is completed, 123 Print is started automatically. To start 123 Print again in the future, double click on the 123 Print short cut on the Windows desktop

The main 123 Print window is displayed as shown here



2.3. General Setup

General introduction

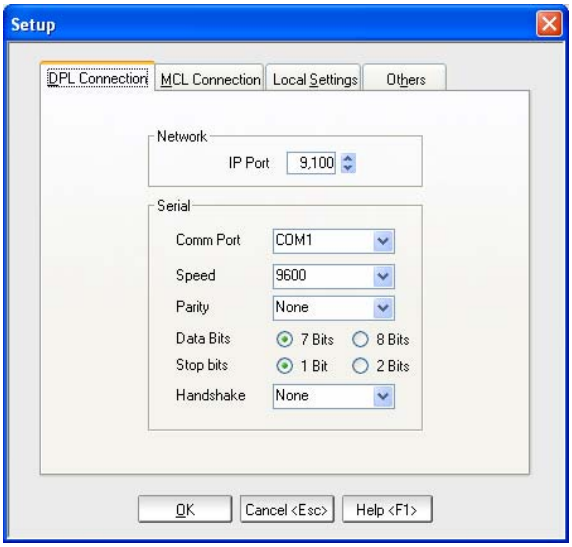
This section describes the setup of 123 Print to allow it to operate in your environment. This setup involves the settings that are required by 123 Print to work with your printer, simulate your project, and integrate with BarTender.

Setup

To enter 123 Print's setup, on the menu bar:

1 Click **Tools**
2 Click **123 Print Settings**

The Setup dialogue box is displayed as shown here



Before you can do anything using 123 Print, you need to set up 123 Print for initial communications with your printer for DPL Mode and MCL Mode where:

- DPL Mode refers to the mode in which 123 Print communicates with the printer using DPL commands.

  DPL is the Datamax language used to print a label and control the printer. These are commands like <STX>F. Please refer to your Datamax manual for more information.

  DPL Mode is a one-way communication between 123 Print and the printer.

- MCL Mode refers to the mode in which 123 Print communicates with the printer using MCL commands to direct the printer and run MCL applications.

  These are commands like NO|001|TF|INVENTORY.DAT|AA.DAT. Please refer to your MCL-Link manual for more information.

  MCL Mode is a two-way communication between 123 Print and the printer. For example, 123 Print may ask for a parameter and receive values in return, or 123 Print may send a file and receive an acknowledgement upon the successful completion of the transmission.

- 123 Print determines which mode to use—DPL Mode or MCL Mode.

  123 Print always tries to use MCL Mode as the default mode. However, if it cannot establish communications using MCL Mode, then 123 Print reverts to using DPL Mode. This will occur if the printer settings and 123 Print settings do not match for the values given in Section 2.3.2 – MCL Connection and Section 7.1 – Connect/Disconnect Printer.

2.3.1. DPL Connection

DPL Connection

Setup your printer interface for DPL Mode communications. In the Setup dialogue box:

1 Click on the **DPL Connection** tab

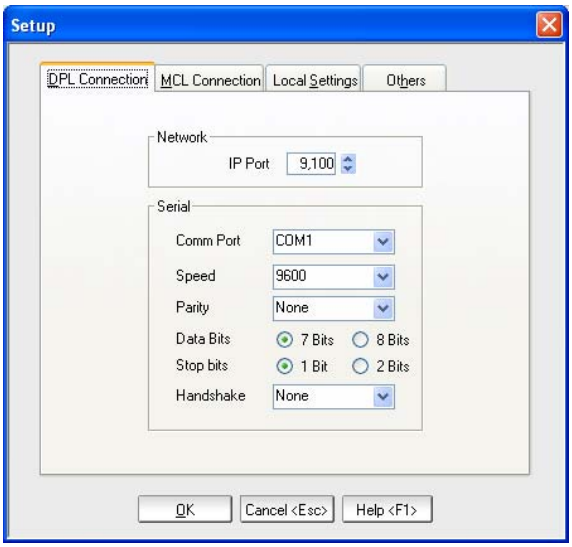
If you want to use network communications for your DPL commands:

2 Edit the **Printer TCP port** with the appropriate port number (typically 9100 or 3000).

If you want to use serial communications for your DPL commands:

3 Edit the **Serial** settings with values appropriate for your printer

These values may be found through the menu on your printer or in your Datamax printer manual.



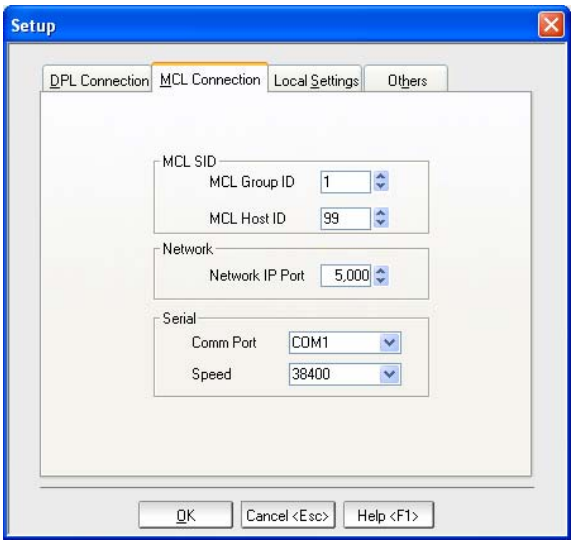
2.3.2. MCL Connection

MCL Connection

Next setup your printer interface for MCL Mode communications. In the Setup dialogue box:

1 Click on the **MCL Connection** tab

The MCL Connection options screen is displayed as shown here



MCL Group ID can be any number from 001 to 255.

In the MCL Group ID setting, enter the value of the **Group ID** you assigned to the **printer** to which you want to connect.

- Think of the Group ID as a way of segmenting your printers similar to a subnet segmentation of network devices.
- Each printer is identified by 123 Print by combining Group ID + MCL ID. (See Section 7.1 – Connect/Disconnect Printer).
- If you have, for example, 750 printers on your network, segment your printers into 3 groups of 250 printers each. Assign each of the 250 printers to the same group and assign a Group ID of 001, 002 or 003, for example, to those printers. Then assign a unique MCL ID such as a number from 001 – 250 to each of the printers within the group.

  These assignments will allow you to uniquely identify all 750 printers on your network.

MCL Host ID can be any number from 001 to 255. It is typically set to 099. This ID is used by the MCL protocol for communications between the Datamax Printers and 123 Print. The MCL Host ID is used to identify 123 Print as the host for these printer communications.

UDP Port is typically 5000.

Comm Port is the port that 123 Print should use on its own platform to communicate serially with a printer.

Speed is the baud rate of the serial port as determined by the printer. Please reference your Datamax manual for information about serial comm speed.

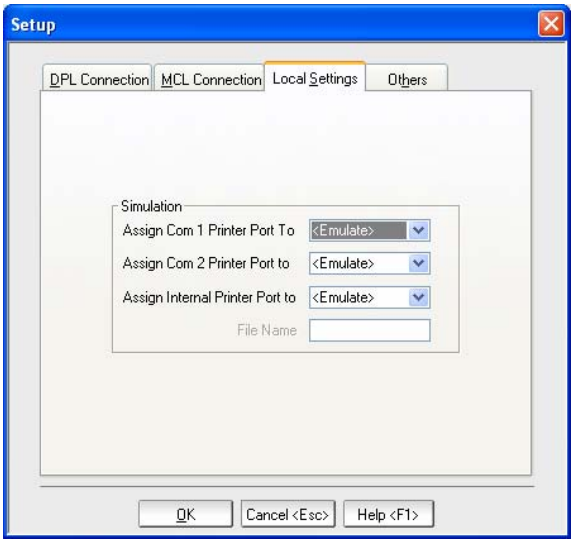
2.3.3. Local Settings

Local Settings

Next, setup project simulation options. In the Setup dialogue box:

1 Click on the **Local Settings** tab

The Local Settings screen is displayed as shown here



The project you run on a printer may require inputs from peripherals such as a barcode scanner on printer port 1 and weight scale on printer port 2.

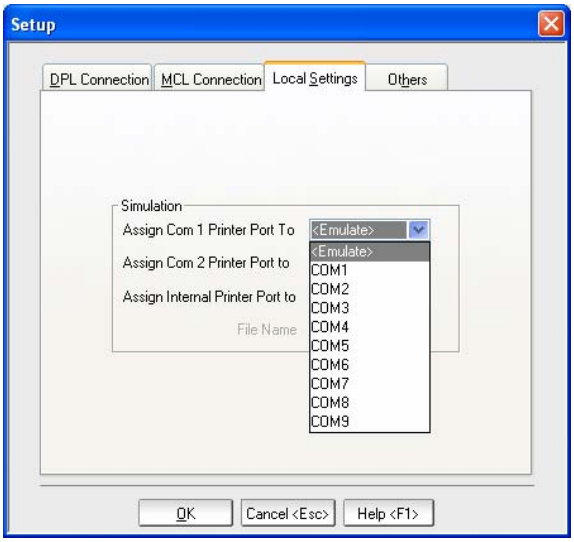
Therefore, when you simulate your project in 123 Print, you will want to emulate the input these peripherals give or connect directly to the given peripheral to receive its input on your development PC. (See **Chapter 6 – Simulating Your Project**).

This **Simulation** setup lets you define the source—emulation or peripheral connection to a port on your PC—of these inputs for your simulation.

- Assign Com 1 Printer Port To
  - This option lets you indicate from where the simulator should fetch the port 1 input in simulation. This is to simulate what the final project will receive from printer port 1 when the project is running on a printer.
  - If this is a barcode scanner, you can choose to emulate the scanner input, or you can connect the scanner to any port on your PC. Indicate the port to which the barcode scanner will actually be connected on your PC. The 123 Print simulator will map this port as port 1 input.

2 **Select** the desired option for printer port 1 simulation.

The com 1 simulation setting options are as shown below

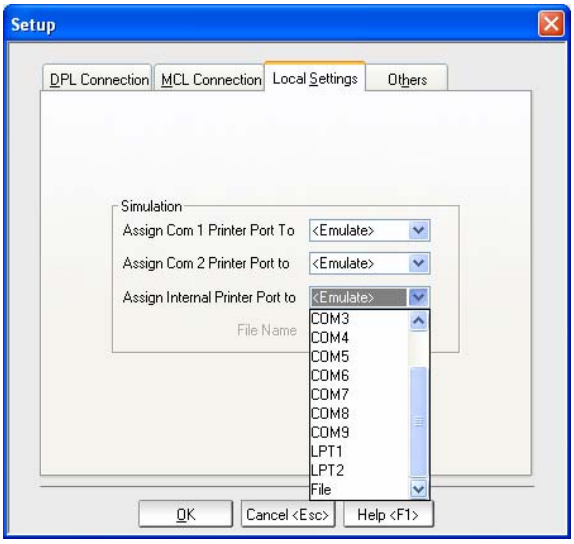


- Assign Com 2 Printer Port To
  - This option is identical to the Assign Com 1 option. This option simply lets you simulate a peripheral, such as a weight scale, that would normally be connected to port 2 on the printer.

3 **Select** the desired option for printer port 2 simulation

- Assign Internal Printer Port To
  - This option allows you to simulate label printing when you are running your project in simulation.
  - You can emulate the label print or send the label as output to a port on your development PC.
  - The output may be sent to a serial com port, an LPT (parallel) port, or to a file. Sending the output to a file is useful if you want to see the DPL code your project is using to print labels on your printer.

The internal printer port simulation options are as shown below



4 **Select** the desired option for label printing simulation
5 Click **OK**

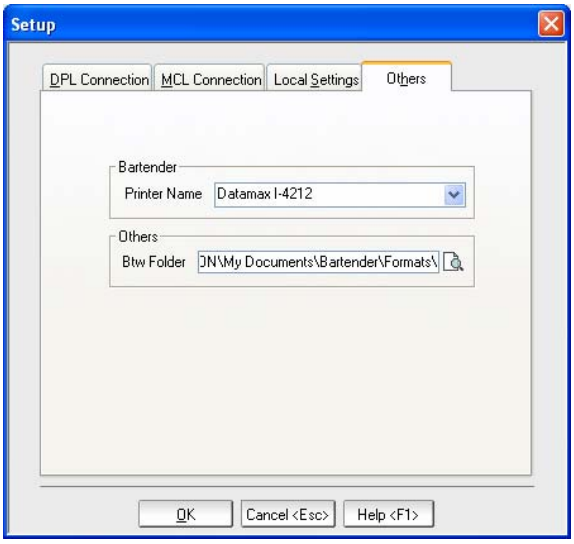
2.3.4. Others

Others

Set up the values for 123 Print's integration with BarTender or DPL labels. In the Setup window:

1 Click the **Others** tab

The Others dialogue box is displayed as shown here



If BarTender is installed and activated on your system:

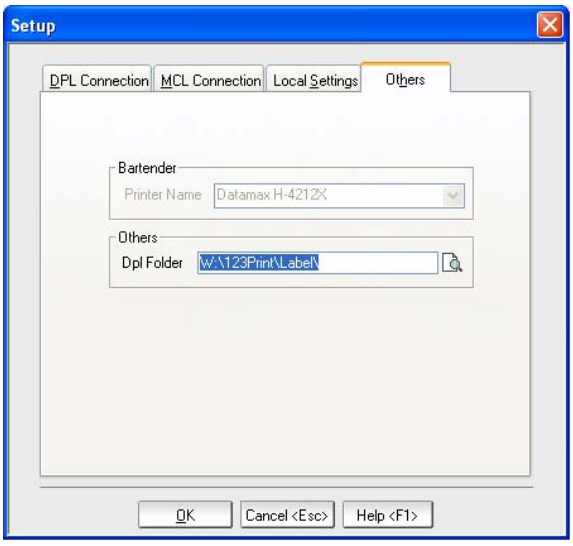
2 In the Printer Name field, identify the default printer to be used for your project. 123 Print passes this printer model to BarTender to use as the default printer for label design for your project when you invoke BarTender from the 123 Print toolbar while creating your project.

3 In the BTW Folder field, navigate to the folder you plan to use as your common folder for your BarTender labels.

By default if BarTender is installed on your system, 123 Print assigns MyDocuments/BarTender/Formats for your BarTender labels. This is the default path BarTender uses when saving labels.

If BarTender is not installed on your system, 123 Print expects your labels to be DPL labels. It assigns a default path of C:\123Print\Label as the location of your DPL label folder.

4 Click OK to use this path or navigate to the folder you want to use



Timer is used to set the duration, in seconds, of the display of the Welcome screen. The Welcome screen is typically displayed momentarily only

5 Edit the timer value, or

6 Use the up and down arrows  beside the timer field to increment or decrement the value of the field.

3. Creating a Project

Overview

Chapter 3 introduction

This chapter describes how to use 123 Print to create projects and label programs for your Datamax printers.

Description

123 Print provides you with all the tools necessary to create applications for your Datamax printer. A 123 Print project involves 4 basic screens:

- Welcome Screen
- Select Label screen
- Quantity to Print screen
- Print Error Message screen

You may associate several additional screens (up to 50) with each label in your project. As you create these additional screens you are creating what is called a label program.

Topics

This chapter covers the following topics:

3.1. Project Description

General introduction

This section describes how to begin creating your 123 Print project.

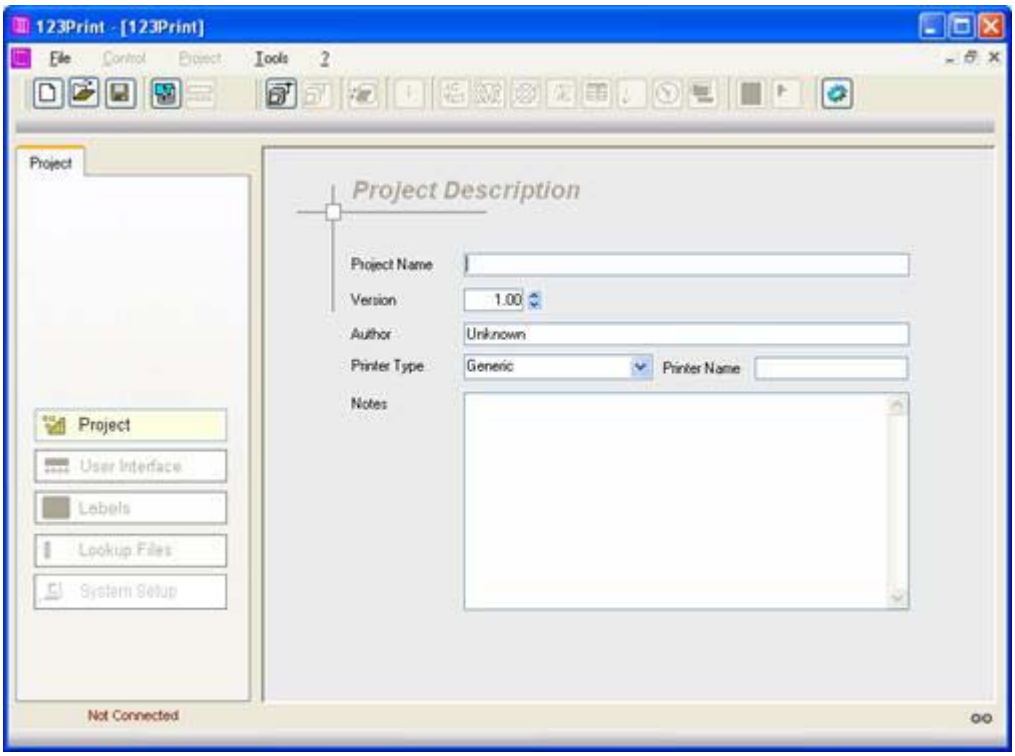
New Project

Start first by creating a new project. On the **menu bar**:

1 Click **File**
2 Click **New**

Alternatively, on the **tool bar**, click on the New Project icon.

The **Project Description** screen is displayed as shown here



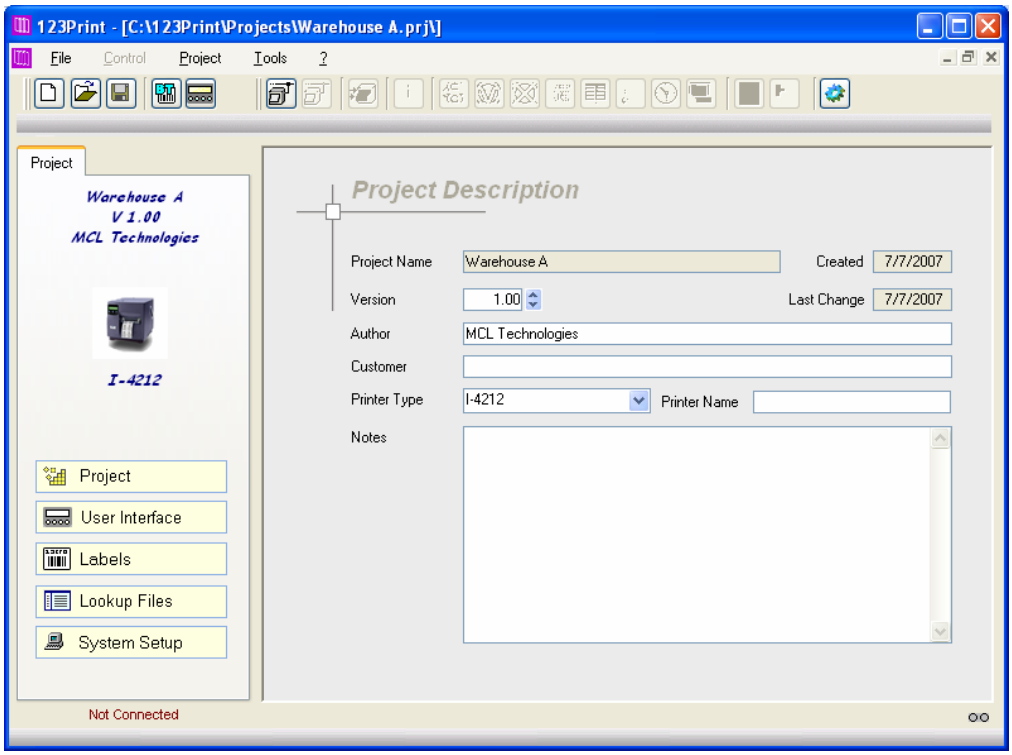
Notice that there are 6 fields available to describe the project you are creating:

- **Project Name** * — The name you wish to assign to your project/application
- **Version** * — The build version of your application. This is a number you assign for project version control
- **Author** — Typically your name or the name of the company creating the application
- **Printer Type** * — The target Datamax printer model for the project you are creating.
- **Printer Name** — An alias for the targeted printer. This is useful for the later management of a group of printers
- **Notes** — Notes you write about this project for future reference

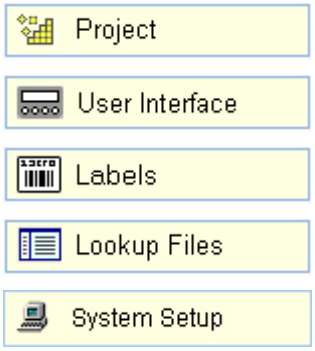
The three fields flagged by * are compulsory fields.

On the **Project Description** screen:

3 **Edit** the fields with the appropriate data



When you have completed editing these fields, notice that the following buttons appear on the left-hand side of the main window:

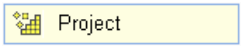


The functions associated with these buttons are discussed in the subsequent sections of this chapter. These are the functions used to create your 123 Print project.

To return to the Project Description at any time, on the **menu bar**:

4 Click **Project**

5 Click **Project Description**.

Alternatively, simply click the **Project** button 

on the left-hand side of the main window

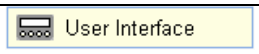
3.2. User Interface

General introduction

This section describes the User Interface core screens of your 123 Print project.

The User Interface is where you configure the core screens with which the user will interact on the Datamax printer.

User Interface

Click the **User Interface** 

button on the left-hand side of the main window, or on the menu bar:

1 Click **Project**
2 Click **User Interface**

The User Interface window is displayed.

By default, the User Interface uses the project description values entered in Section 3.1 – Project Description. It also uses this information to present a User Interface, as shown below, that is appropriate for the display type — text display or graphical display — available on the printer model selected for the given project.

The **User Interface** window shows 4 default screens:

- Welcome Screen
- Select Label
- Quantity to Print
- Print Error Message

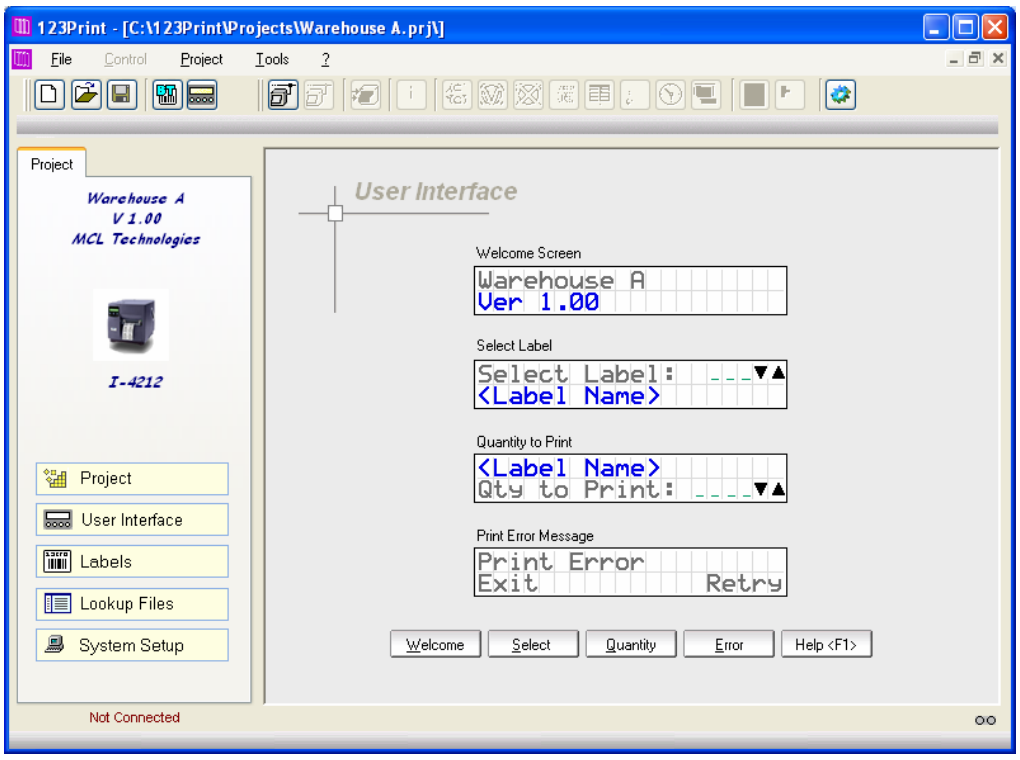
These 4 screens form the basis of all 123 Print projects you create. These screens can be edited. They contain a combination of data entry fields and editable text.

A variety of colors are used on these screens to help configure them:

Gray = User read-only text on printer
Blue = Variable content in project development
Red = User variable input field on printer from barcode scanner
Green = User variable input field on printer from front panel or connected keyboard

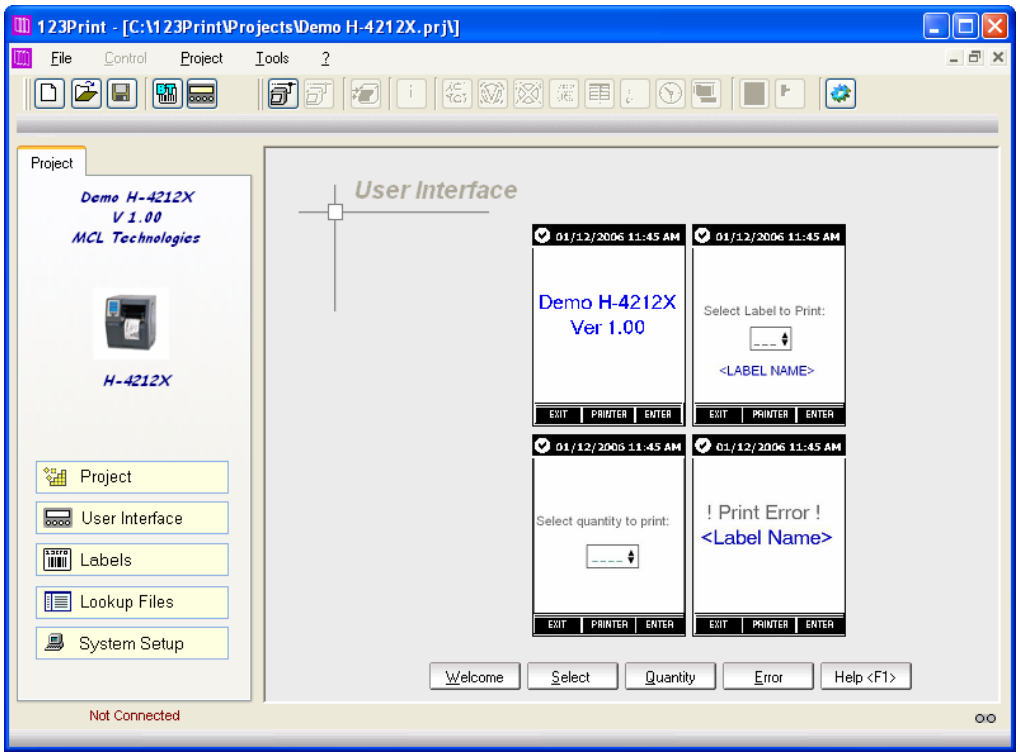
Text Display

The User Interface for a text display printer is as shown here:



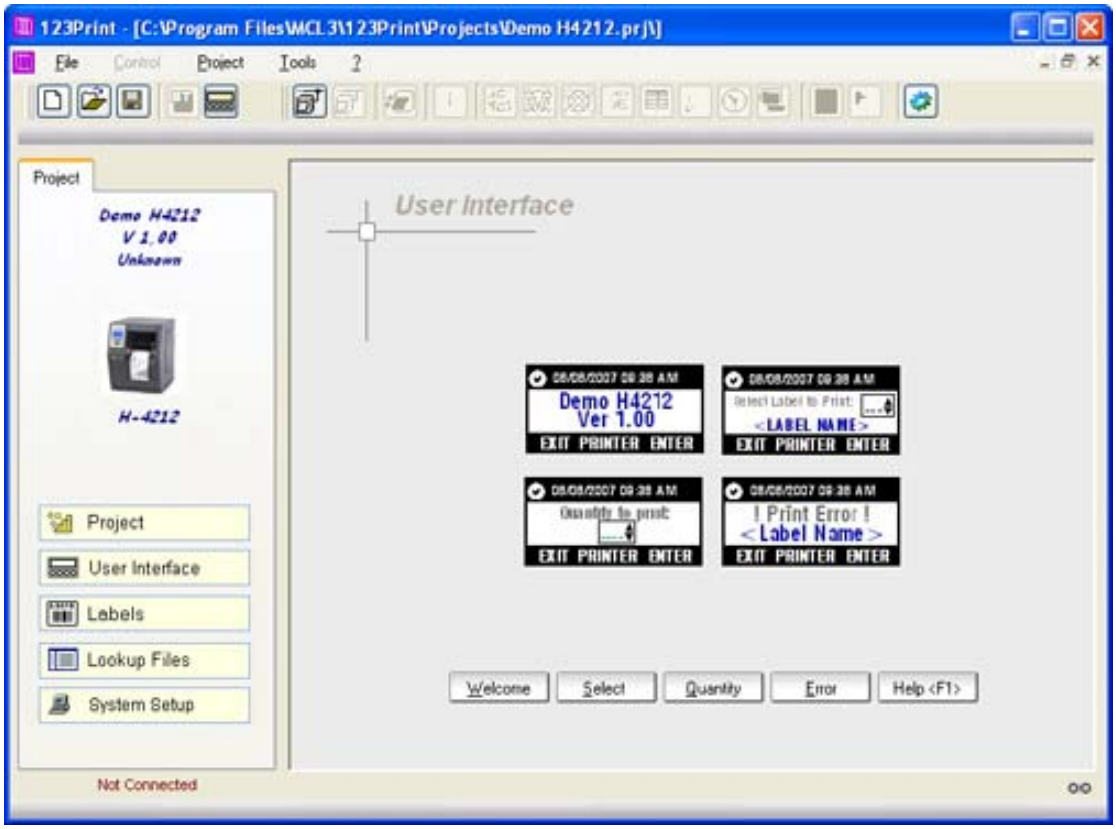
Graphical Display - Large

The User Interface for a large graphical display printer is as shown here.



Graphical Display - Small

The User Interface for a small graphical display printer is as shown here:



Graphical Display - Status Toolbar

The status toolbar across the top of the graphical display screens gives the following printer status:

- Printer is Ready
- Printer is Paused
- Printing Error
- Printer is Printing

The Printer is Printing status is accompanied by the Printer Ready status and a Printing Progress indicator as shown here:

3.2.1. Welcome Screen

Welcome Screen

The Welcome screen is the first screen the user will see when they start your 123 Print project on the printer. You can edit the welcome you want to give the user. Notice that, by default, 123 Print uses the details you entered in the Project Description in Section 3.1.

To edit the Welcome screen, on the User Interface window:

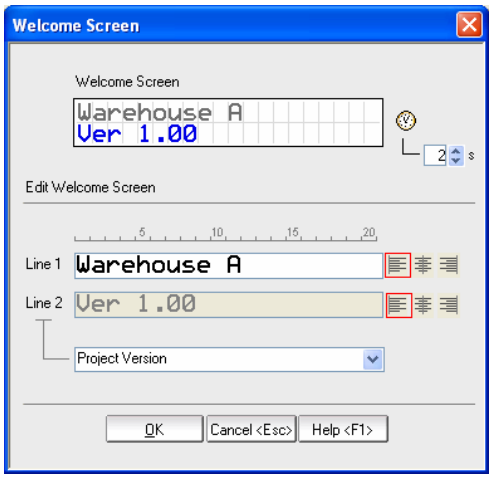
1 Click on the **Welcome screen**, or

2 Click the Welcome  button at the bottom of the window

As with the Interface Screen, the Welcome Screen varies according to the display type available on the printer model selected for the given project.

Text Display

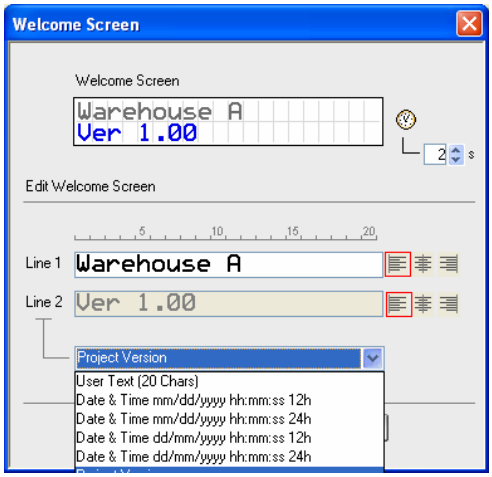
The Welcome Screen editing window for a text display printer is as shown here:



Edit the Welcome screen to give the desired information

3 On **Line 1** enter up to 20 characters of **text**

4 On **Line 2** choose one of the system **variables** as shown below:



If you select Project Version, the Version you enter in the Project Description in Section 3.1 is displayed on Line 2 of the Welcome screen.

Similarly, if you select Printer Model, the Printer Type you enter in the Project Description in Section 3.1 is displayed on Line 2 of the Welcome screen.

As you make your changes, the result will appear in the display in the top-half of the editing window.

The clock next to the Welcome screen in the top-half of the editing window sets the delay period for this screen. By default, this delay is set to 2 seconds. This means that when the project is run on the printer, the printer will pause for 2 seconds on the Welcome screen before moving on to the Select Label screen. You can edit the Welcome screen delay:

5 Edit the value of the delay from 0 - 99 seconds, or

6 Increment or decrement the value of the delay using the up and down arrows beside the delay entry field.

If the delay is set to zero (0) seconds, a user will have to press a button on the printer to advance the application to the next screen.

To accept the changes made to the Welcome screen:

7 Click **OK**

Graphical Display - Large

To edit the Welcome screen for a graphical display project, on the User Interface window:

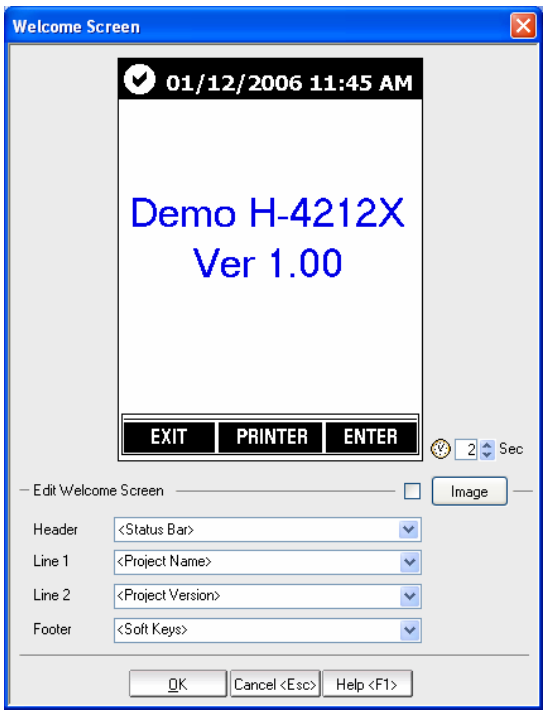
1 Click on the **Welcome screen**, or

2 Click the Welcome button at the bottom of the window

Alternatively, on the User Interface window:

3 Simply double click on the thumbnail view of the Welcome screen

The Welcome Screen editing window for a large graphical display printer is as shown here:



Graphical Display Elements

Notice that this screen displays a Status Toolbar in a header across the top, printer key labels in a footer across the bottom, and two lines of text on the main display. Each of the screens for graphical display printers uses this same format.

From left to right, the Status Toolbar shows respectively Printer Status, printer system date, and printer system time. For more information about Printer Status see Section 3.2 – User Interface - Graphical Display - Status Toolbar.

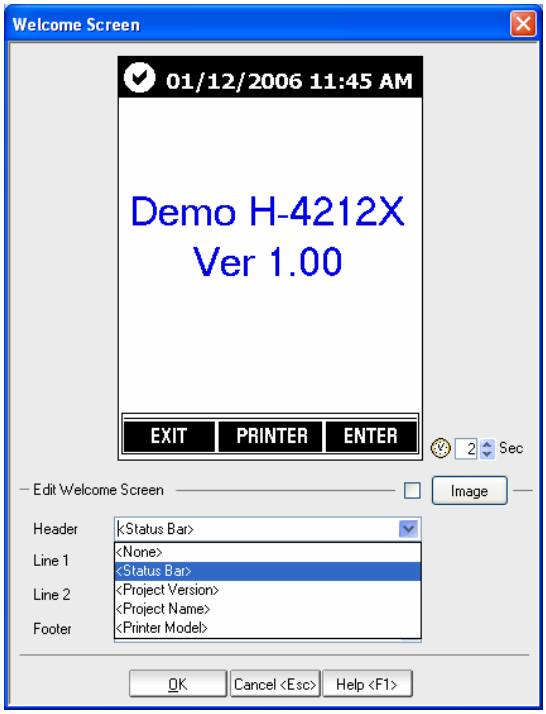
The Footer Soft Keys show the function of the Datamax printer keys in an MCL application. These may be defined on a project-by-project basis as described is Section 3.5.1 - Soft Keys Setup – Graphical Display Only.

The two lines of the main graphical display show the same information as that shown on the two lines of a text display screen for the equivalent screen. For example, as shown above, by default, the <Project name> and <Project Version> are displayed on the Welcome screen for both the text display and graphical display printers.

Although default content is provided, each of the screens provides a number of options for screen content. To edit the Welcome screen:

4 Select a **Header** option
5 Select a **Line 1** option
6 Select a **Line 2** option
7 Select a **Footer** option.
8 Click **OK**

Below shows the options available for a Header.



Alternatively, instead of choosing one of the pre-defined options,
9 Type fixed text in any of the edit boxes

Some screens, such as the Welcome Screen and Printer Error Message screen also support the addition of an optional image. The image must be a monochrome wallpaper image in *.bmp format with a size of 240x320 pixels.

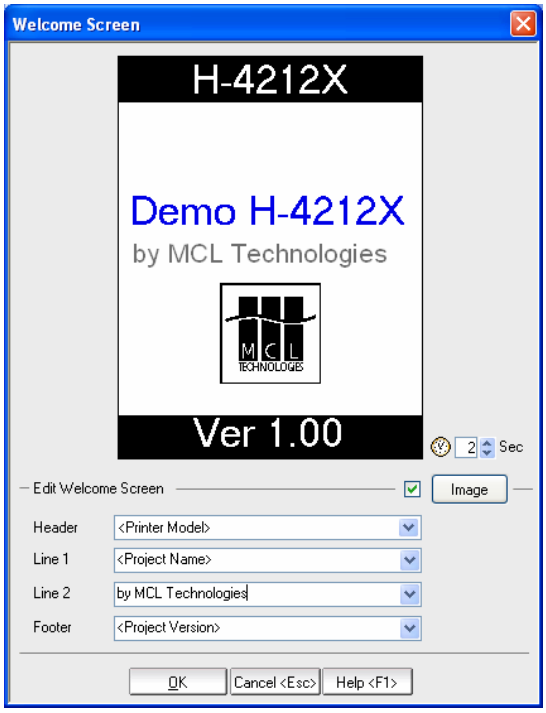
To add an image:

10 Click on the Image checkbox or Image  button.

A standard Windows browse window is displayed.

11 Navigate to and select the image to be displayed on the given screen.

Below shows an example of a Welcome screen edited to have an image and fixed text on Line 2:



As with the text display screen, the clock control allows you to edit the Welcome screen delay:

12 Edit the value of the delay from 0 - 99 seconds, or

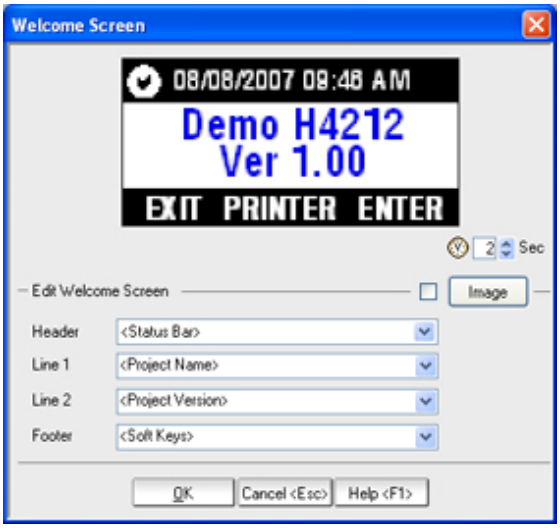
13 Increment or decrement the value of the delay using the up and down arrows beside the delay entry field.

14 Click **OK**

If the delay is set to zero (0) seconds, a user will have to press a button on the printer to advance the application to the next screen.

Graphical Display - Small

The Welcome Screen editing window for a small screen graphical display printer is as shown below. The properties and options available for this screen are identical to those described above for the large screen graphical display.



3.2.2. Select Label Screen

Select Label screen

The Select Label screen is displayed after the Welcome screen has been displayed. You may edit this screen to give the user different prompts than those supplied by default by 123 Print.

To edit the **Select Label** screen, on the User Interface window:

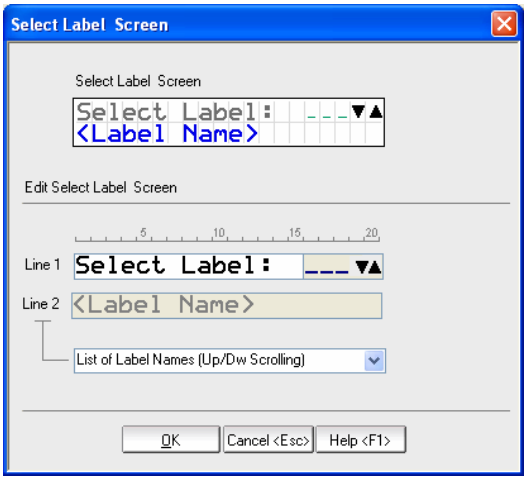
1 Click on the **Select Label** screen, or

2 Click the Select  button at the bottom of the window

As with the Welcome Screen (Section 3.2.1 – Welcome Screen), the Select Label Screen varies according to the display type available on the printer model selected for the given project.

Text Display

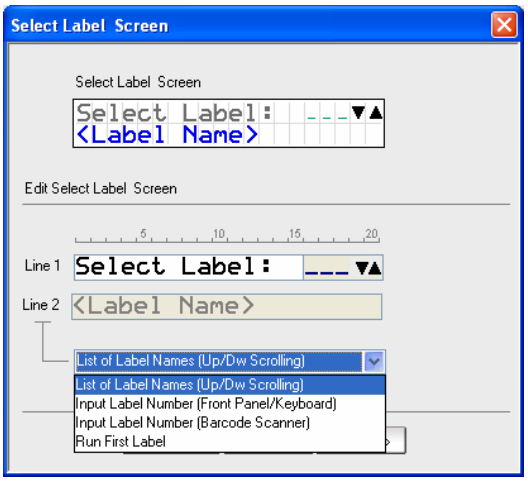
The Select Label Screen editing window for a text display printer is as shown here:



This screen is the default screen that is displayed when a user is required to select a label on a printer running a 123 Print application.

Edit this screen to create the user screen prompt you want displayed

3 On **Line 1** enter up to 15 characters of **text**. The arrows on this line are not removable. By default the user can always scroll through the list of available labels.



4 On **Line 2** choose the method you want to use to select the label

The Datamax printer cannot accept input from both a connected keyboard and a barcode scanner for a given input field. However, it can accept input from the front panel and a connected keyboard, or from the front panel and a barcode scanner, or from just the front panel.

Graphical Display - Large

To edit the **Select Label** screen, on the User Interface window:

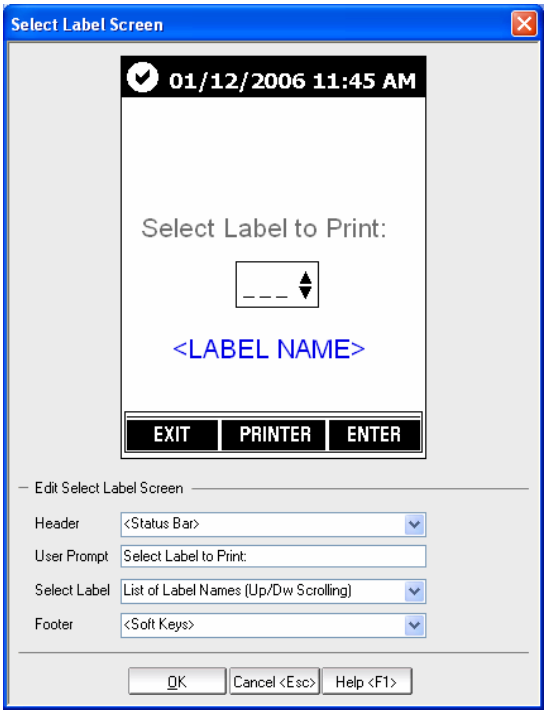
1 Click on the Select Label screen, or

2 Click the Select  button at the bottom of the window

Alternatively, on the User Interface window:

3 Simply double click on the thumbnail view of the Select Label screen

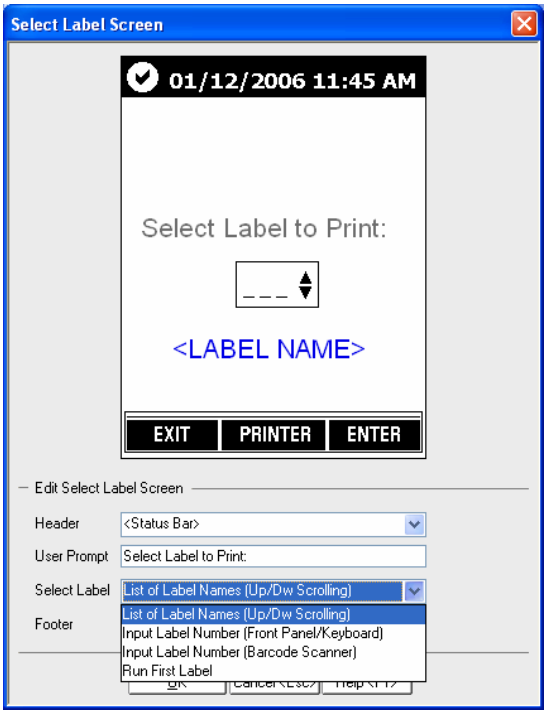
The Select Label Screen editing window for a large graphical display printer is as shown here:



Notice that this screen has the same display screen editing options — a Header, Footer and two lines on the main display — as those described in Section 3.2.1 – Graphical Display Elements.

The two lines of main display text show, by default, the same content on the Select Label screen for both the text display and graphical display printers:

- Fixed user prompt “Select Label to Print” and
- The option “List of Label Names (Up/Dwn Scrolling)”



4 Select a **Header** option
5 Edit the **User Prompt** box to display the desired prompt
6 On **Select Label** choose the method you want to use to select the label. These options are the same as those described above for Select Label - Text Displays.
7 Select a **Footer** option
8 Click **OK**

Alternatively, instead of choosing one of the pre-defined options,
9 Type fixed text in any of the edit boxes
10 Click **OK**

Graphical Display - Small

The Select Label Screen editing window for a small screen graphical display printer is as shown below. The properties and options available for this screen are identical to those described above for the large screen graphical display.

3.2.3. Quantity to Print Screen

Quantity to Print screen

To edit the **Quantity to Print** screen, on the User Interface window:

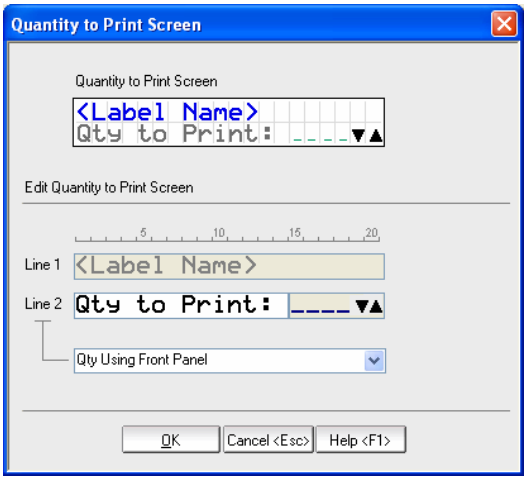
1 Click on the **Quantity to Print** screen, or

2 Click the Quantity  button at the bottom of the window

As with the Welcome Screen (Section 3.2.1 – Welcome Screen), the Quantity to Print Screen varies according to the display type available on the printer model selected for the given project.

Text Display

The Quantity to Print Screen editing window for a text display printer is as shown here:

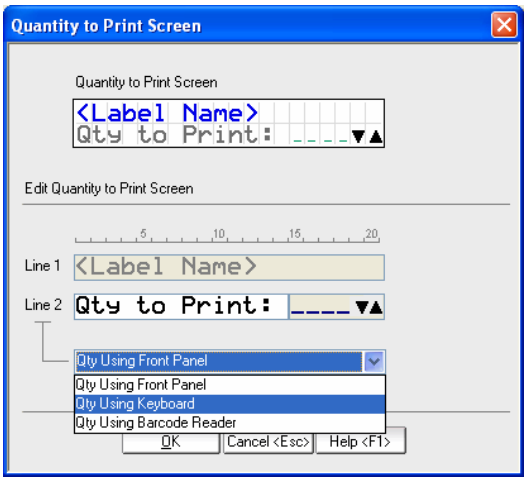


This screen is the default screen displayed for a user to select the quantity of a label to be printed.

Line 1 automatically displays the name of the Label chosen on the Select Label screen. Line 1 is therefore not editable.

By default the user can always increment or decrement the quantity of the labels to be printed. Therefore, the arrows on line 2 are not removable.

Three quantity input methods are available as shown here:



3 On **Line 2** choose the quantity input method you want to use

The Datamax printer cannot accept input from both a connected keyboard and a barcode scanner for a given input field. However, it can accept input from the front panel and a connected keyboard, or from

the front panel and a barcode scanner, or from just the front panel.

- If you choose **Qty Using Front Panel**, the user must use the Fwd ↑ and Rev ↓ buttons on the front panel to increment or decrement the quantity.
- If you choose **Qty Using Keyboard**, keyboard and front panel input is enabled; the user may input a quantity from the keyboard or use the Fwd ↑ and Rev ↓ buttons on the front panel to increment or decrement the quantity.
- If you choose **Qty Using Barcode Reader**, the user can scan the quantity or use the Fwd ↑ and Rev ↓ buttons on the front panel to increment or decrement the quantity.

4 Click **OK**

Graphical Display - Large

The graphical display **Select Quantity** Screen is equivalent to the text display **Quantity to Print** Screen.

To edit the **Select Quantity** screen, on the User Interface window:

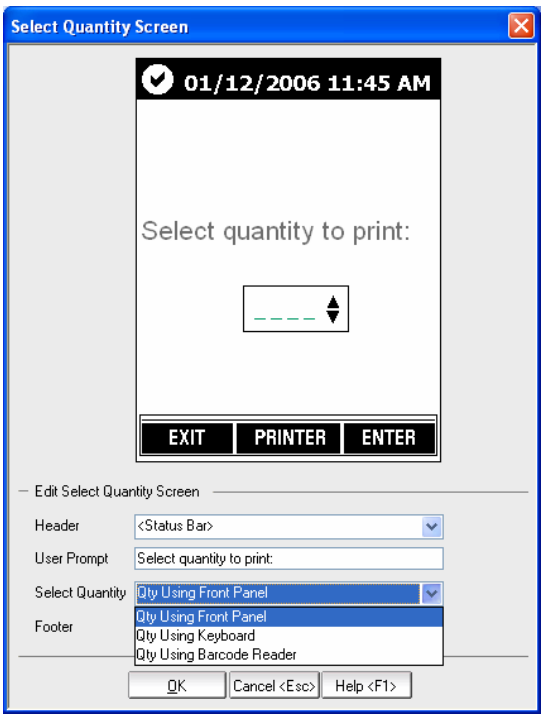
1 Click on the **Select Quantity** screen, or

2 Click the Quantity  button at the bottom of the window

Alternatively, on the User Interface window:

3 Simply double click on the thumbnail view of the Select Quantity screen

The Select Quantity Screen editing window for a large graphical display printer is as shown here:



Notice that this screen has the same display screen editing options — a Header, Footer and two lines on the main display — as those described in Section 3.2.1 – Graphical Display Elements.

The two lines of main display text show, by default, the same content on the Quantity to Print screen for both the text display and graphical display printers:

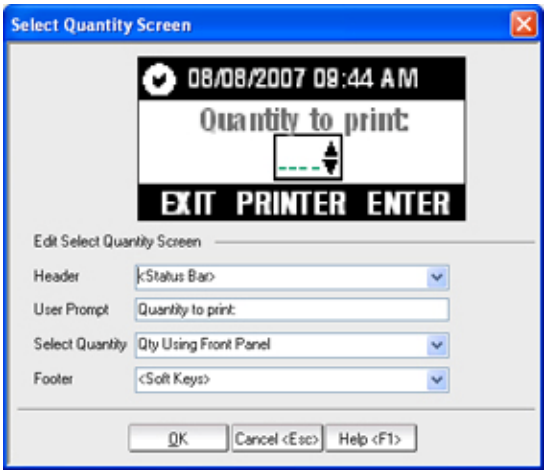
- Fixed user prompt “Select quantity to print” and
- The option “Qty Using Front Panel”

4 Select a **Header** option
5 Edit the **User Prompt** box to display the desired prompt
6 On **Select Quantity** choose the method you want to use to input the quantity. These options are the same as those described above for Quantity to Print - Text Displays.
7 Select a **Footer** option
8 Click **OK**

Alternatively, instead of choosing one of the pre-defined options,
9 Type fixed text in any of the edit boxes
10 Click **OK**

Graphical Display - Small

The Select Quantity Screen editing window for a small screen graphical display printer is as shown below. The properties and options available for this screen are identical to those described above for the large screen graphical display.



3.2.4. Print Error Message Screen

Print Error Message screen

The Print Error Message Screen is displayed by the Datamax printer whenever it detects a print error. You can display whatever message is appropriate here for your environment.

To edit the **Print Error Message** screen, on the User Interface window:

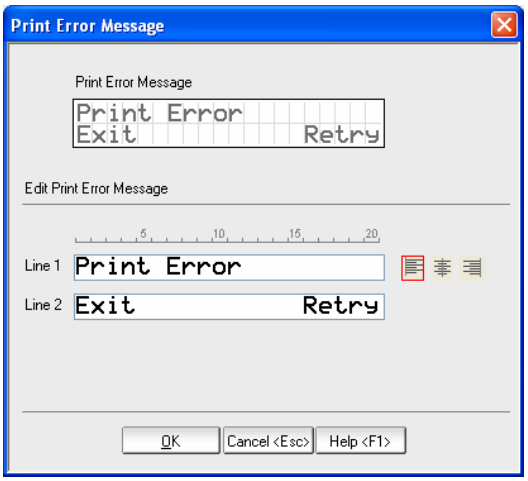
1 Click on the **Print Error Message** screen, or

2 Click the Error  button at the bottom of the window

As with the Welcome Screen (Section 3.2.1 – Welcome Screen), the Print Error Message Screen varies according to the display type available on the printer model selected for the given project.

Text Display

The Print Error Message editing window for a text display printer is as shown here:



Line 1 and Line 2 are both editable. Both allow up to 20 characters of text.

By default, Line 1 displays the message **Print Error**.

By default, Line 2 displays the actions available to the user when a print error occurs.

When a print error occurs, two user actions are possible—exit the project or retry to print the label. These actions are initiated by pressing buttons on the front panel of the printer.

- The project will **exit** when either the **REV** or **ESC** button on the left-hand side of the printer front panel is pressed.
- The printer will **retry to print** the label when the **ENT** button on the right-hand side of the printer front panel is pressed.

You are not obligated to maintain this convention and may edit both lines of the screen to suit your environment.

3 Edit **Line 1** with the desired error text message

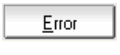
4 Edit **Line 2** with the desired error text message

5 Click **OK**

Graphical Display - Large

To edit the **Print Error Message** screen, on the User Interface window:

1 Click on the **Print Error Message** screen, or

2 Click the Error  button at the bottom of the window

Alternatively, on the User Interface window:

3 Simply double click on the thumbnail view of the Print Error

Message screen

The Print Error Message Screen editing window for a large graphical display printer is as shown here:

Notice that this screen has the same display screen editing options — a Header, Footer and two lines on the main display — as those described in Section 3.2.1 – Graphical Display Elements.

4 Select a **Header** option
5 Edit **Line 1** to display the desired print error message
6 Select a **Line 2** option
7 Select a **Footer** option
8 Click **OK**

The option <Label Name> is the name of the label that is being printed when this print error occurs.

Alternatively, instead of choosing one of the pre-defined options,
9 Type fixed text in any of the edit boxes
10 Click **OK**

The Printer Error Message screen also supports the addition of an optional image. The image must be a monochrome wallpaper image in *.bmp format with a size of 240x320 pixels.

To add an image:

11 Click on the Image checkbox or Image  button.

A standard Windows browse window is displayed.

12 Navigate to and select the image to be displayed on the given screen.

Graphical Display - Small

The Print Error Message Screen editing window for a small screen graphical display printer is as shown below. The properties and options available for this screen are identical to those described above for the large screen graphical display.

3.3. Labels

General introduction

The **Labels** function allows you to add the following capabilities to your 123 Print projects

- Associate pre-designed labels
- Associate screen prompts with a label to collect user input, such as an item product code, to be printed dynamically on the label
- Collect input from printer peripherals, such as a barcode scanner or weight scale, to be printed dynamically on a label
- Add logic to manipulate the input data, such as extract the weight from a weight scale input data stream, and merge it into the label to be printed

This section describes how to associate an existing label to your project. This can be a static label you simply want to print. It can also be a static label you want to use as a template for creating dynamic labels.

This section also describes the functions available for creating a dynamic label using screen prompts, peripheral inputs, and processing logic. This combination of screens, variable data, and logic is referred to as a **label program**.

The pre-designed labels that you associate with your 123 Print project may be any DPL label or a label created using Seagull Scientific's BarTender. Please reference **Chapter 4 – Designing a Label** for information about creating BarTender labels for 123 Print.

Associate a label

To associate an existing label to your 123 Print project, enter the Labels function

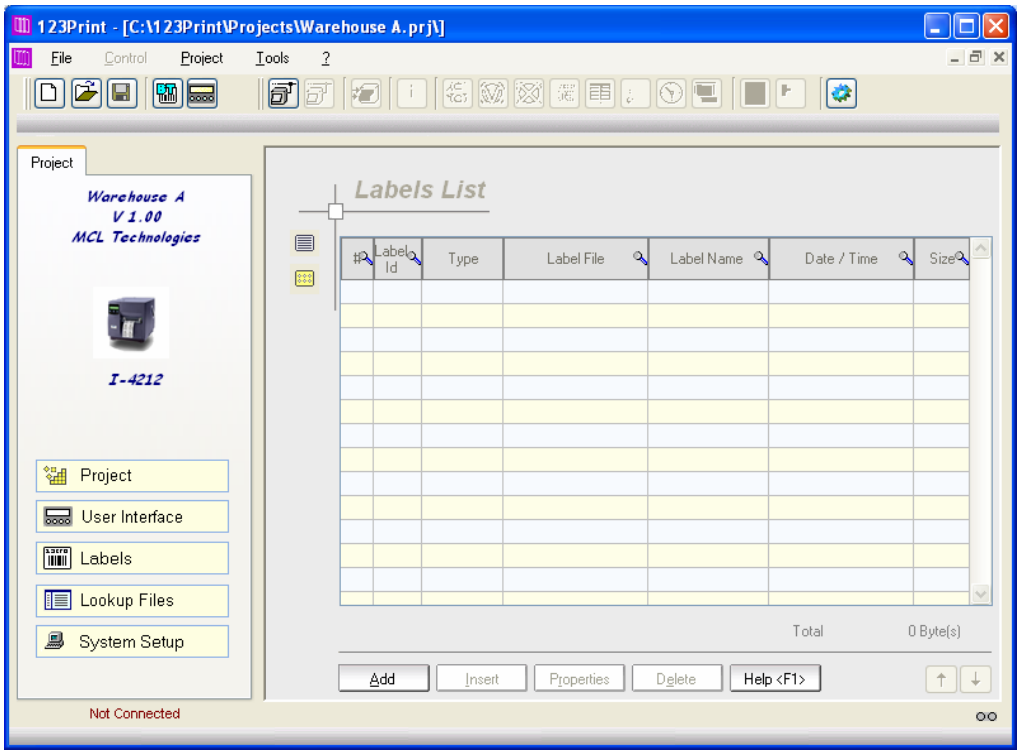
1 Click the Labels  button on the left-hand side of the main window.

Alternatively, on the 123 Print menu bar,

2 Select **Project**

3 Select **Labels**

The Labels List window is displayed as shown here

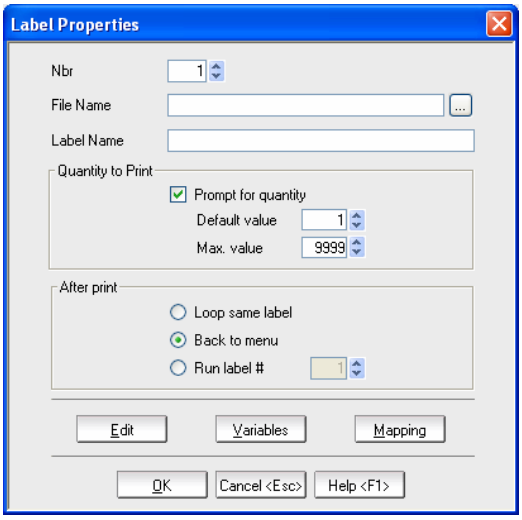


To associate a label with your 123 Print project,

4 Click the Add button at the bottom of the Labels List window

Each time you add a label, 123 Print assigns a sequence number to the label. This system assigned number is displayed in the Labels List window in the left most column called **#**. This number determines the sequence order in which the labels are displayed on the Select Label Screen (see Section 3.2.2 – Select Label Screen).

When you Add a label, the Label Properties screen is displayed as shown here



Label Properties

The Label Properties screen allows you to associate a given label to your project. The Label Properties screen is also the entry point to create a label program.

5 Set the label properties as appropriate for the given label:

- **Nbr** — Enter the number you wish to assign to the label in your 123 Print project. This number is displayed on the Select Label Screen when the user is choosing which label to print for a given operation
- **File Name** — Enter the path and name or browse to search for the label you want to add to your project. Valid file types are *.btw, *.dpl and *.txt (if the *.txt file contains DPL code)
- **Label Name** — Assign a name to this label. This is displayed on the Select Label screen when the user is choosing which label to print for a given operation.
- **Quantity to Print** — If you want the user to enter a quantity, check the **Prompt for quantity** checkbox. Assign a default value and maximum value to help the user. If you want to set a fixed quantity to print with no user prompting, uncheck the Prompt for quantity checkbox and enter the fixed value in the default value box. These entries are used on the Quantity to Print screen as described in Section 3.2.3.
- **After Print** — Setup what you want to do after the label has been printed. You can
  - Loop on the same label. This returns you to the first screen of the label program
  - Return to the **Select Label** screen
  - Run a different label. Identify a label to print next, automatically, without user input. Reference it by its **Nbr** number.

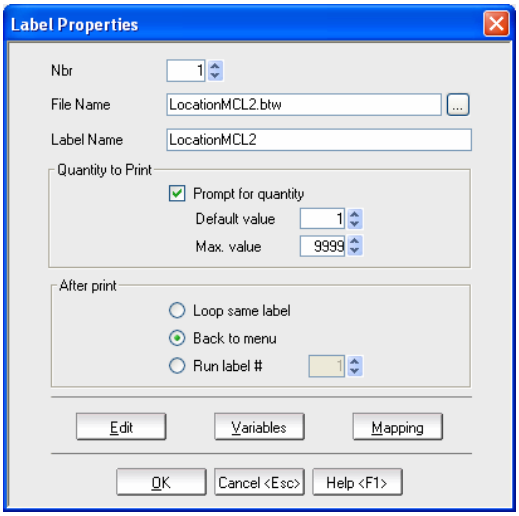
Static label

If you are simply associating a static label, you are done using the Labels function for this label

6 Click **OK** to close the Labels Properties and return to the Labels List window to add other labels as necessary

Label template for dynamic label

Once you have added a label, in this case the label LocationMCL2.btw, and setup the Label Properties, three buttons become functional on the Label Properties window as shown here



- Edit allows you to modify your label design from within 123 Print.
- See Section 3.3.1 - Edit

- Variables allows you to add screen prompts and logic to your label design.
- See Section 3.3.2 - Variables

- Mapping allows you to associate variable data with a label template.
- See Section 3.3.3 – Mapping

Note: Any static label may be used as a template for a dynamic label

The functions associated with these buttons are discussed in the subsequent sections of this chapter. These are the main functions used to create your label programs.

When you have completed your Edit, Variables, and Mapping functions for a given label,

7 Click **OK** to close the Labels Properties and return to the Labels List window to add other labels as necessary

3.3.1. Edit

General Introduction

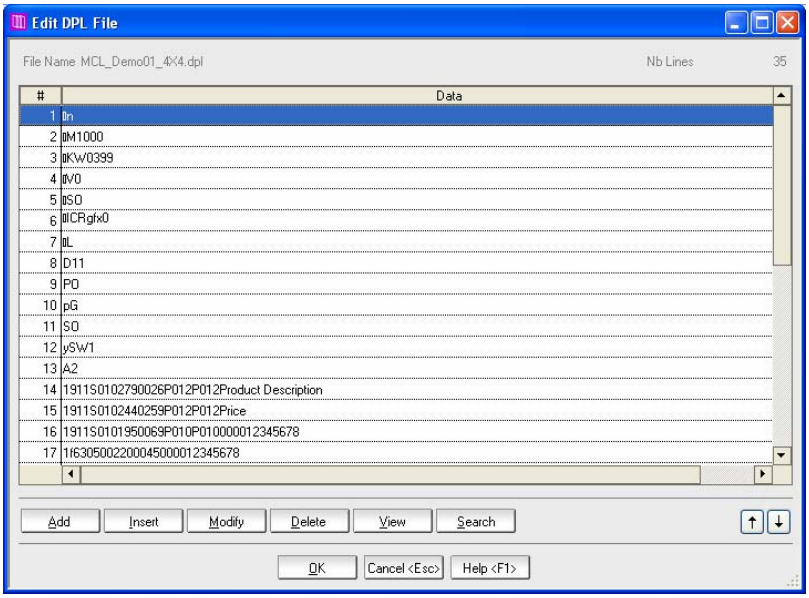
If you have Seagull Scientific's BarTender installed and activated on your system, and are working with a BarTender *.btw file, when you press **Edit**, 123 Print starts Bartender with your active label open for editing.

If you do not have a BarTender label and are working directly with a *.txt or *.dpl file, **Edit** will display the DPL code of the label for editing.

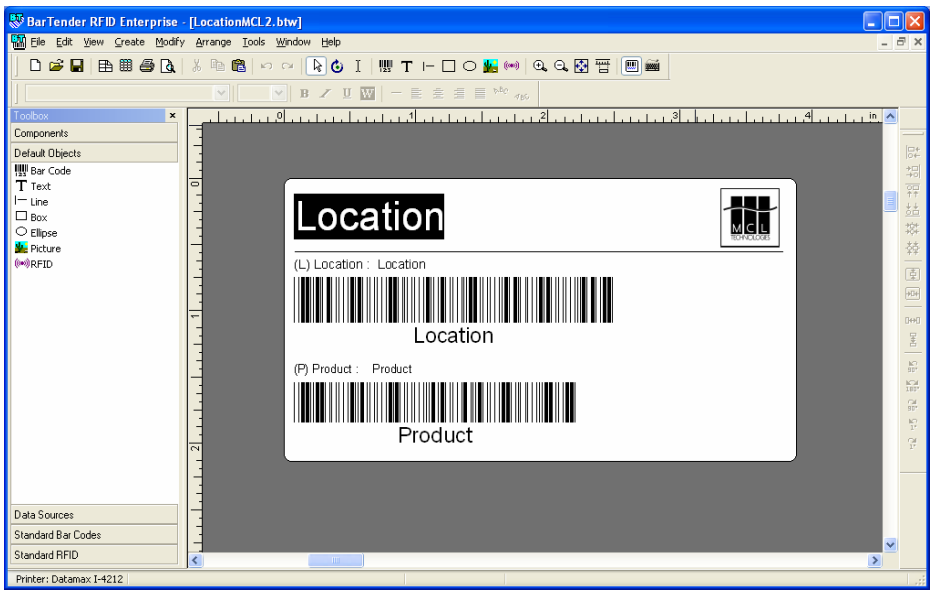
Edit

1 Click the Edit button to view and edit your selected label.

If you are working with a *.dpl label, the DPL code is opened in the Edit DPL File window as shown here



If you are working with a *.btw label, the label is opened in BarTender as shown here



For more information on label design with BarTender, please refer to **Chapter 4 – Designing a Label**.

3.3.2. Variables

General introduction

Variables is one of the main functions in 123 Print to enable you to create labels that are printed with dynamic content.

Consider the labels shown in Section 1.2 – Sample Labels. These labels include variable data such as the date and time at the moment the label was printed. This function allows you to include this kind of variable information on your labels.

This section describes how to use the Variables function to collect dynamic content for your labels.

Variables

After adding a label to your 123 Print project as described in Section 3.3 – Labels, to add variable content to your labels, on the Label Properties dialogue box:

1 Click the Variables 

button

Variables

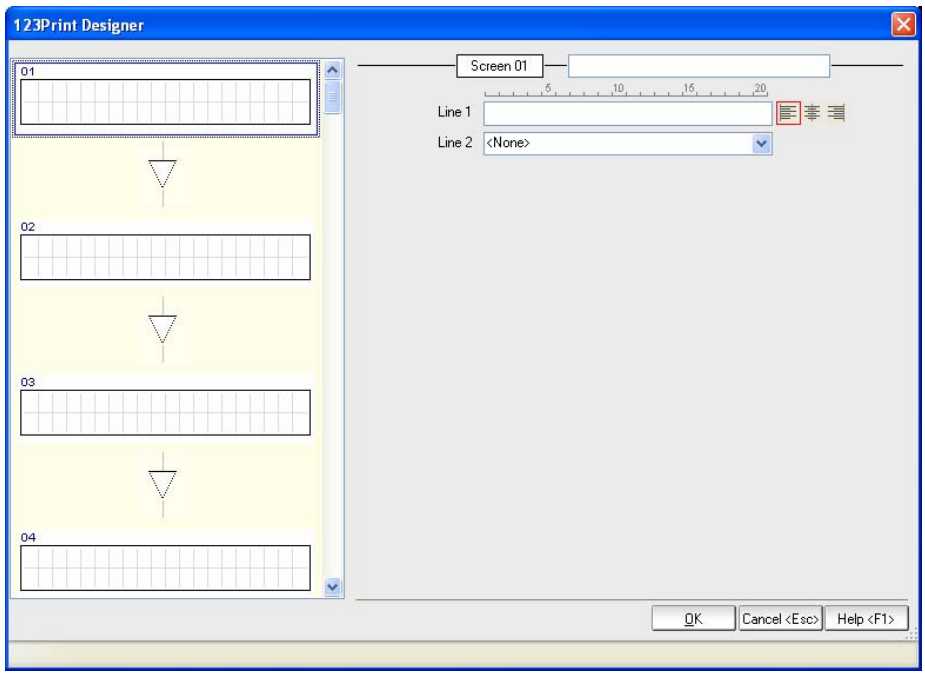
The Variables function allows you to build a dialogue between your label program (see Section 1.3 – Project Flow) and the user via a series of screen prompts. These are displayed on the left-hand side of the 123Print Designer window as shown below. You can assign up to 50 screens to each label. Each screen is editable. The first line is text to prompt the user about what data to enter. The second line is where the user will enter the required data. You define these screen prompts in the editing window on the right.

Text displays are used in this section to show how to use Variables. The procedure is identical for graphical display printers.

Text Display

The 123Print Designer window for a text display printer is as shown here. Up to four prompt screens are displayed at a time for text display printers.

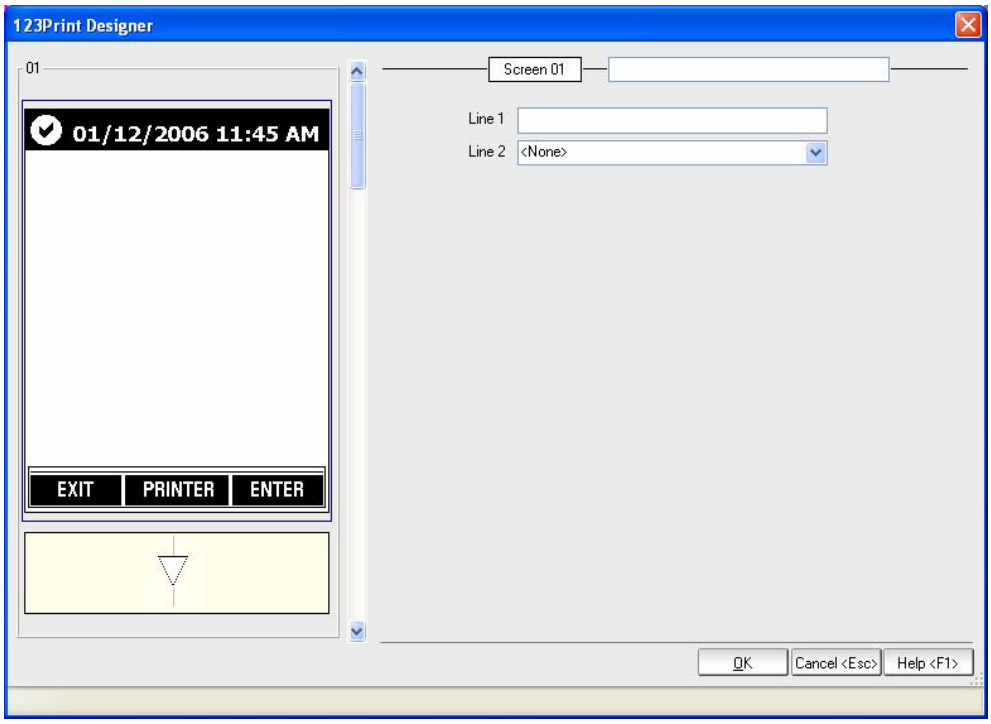
Use the scroll bar provided to navigate through your prompt screens.



Graphical Display - Large

The 123Print Designer window for a large graphical display printer is as shown here. Only one prompt screen is displayed at a time for large graphical displays.

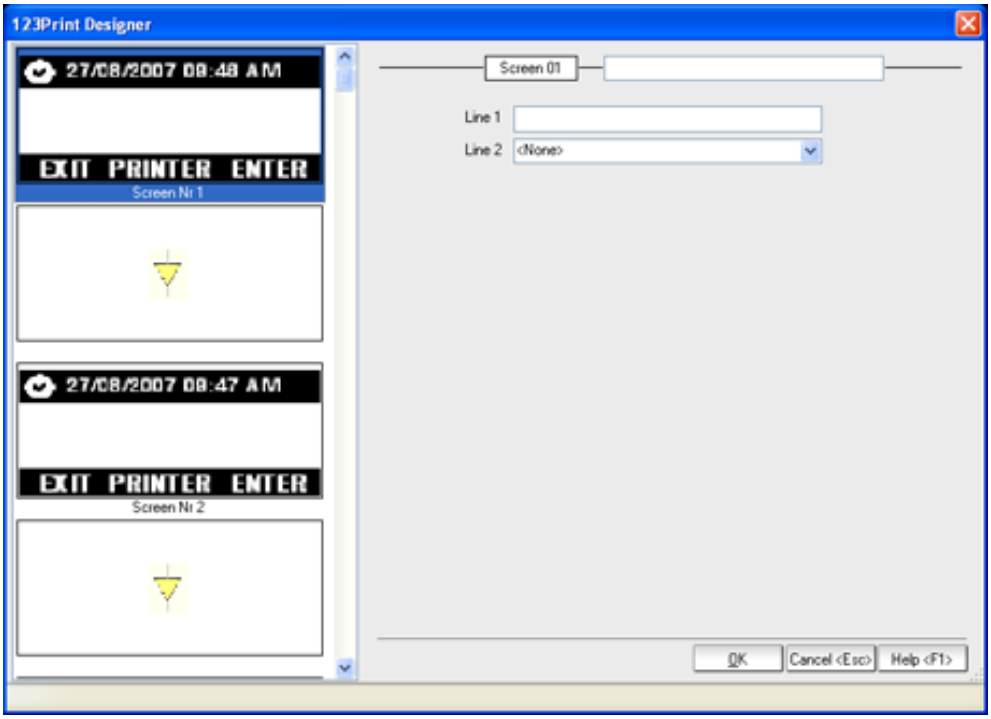
Use the scroll bar provided to navigate through your prompt screens.



Graphical Display - Small

The 123Print Designer window for a small graphical display printer is as shown here. Up to 2 prompt screens are displayed at a time for small graphical displays.

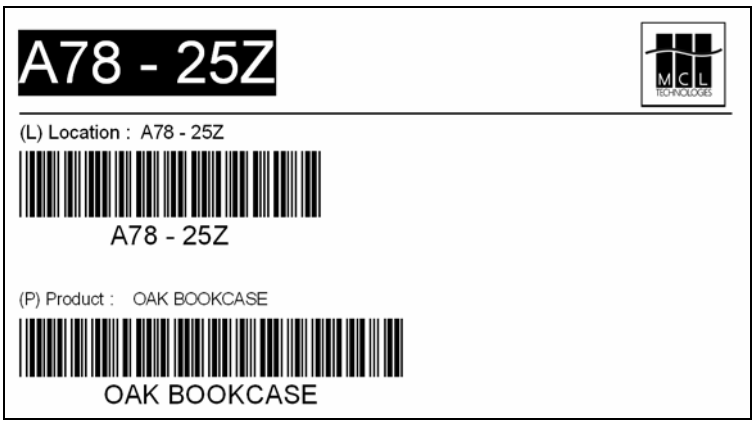
Use the scroll bar provided to navigate through your prompt screens.



Creating a label program

To show you how to design a label program, an example is used extensively herein. This example creates Warehouse Shelving labels, like the one shown below, for a self-service warehouse. The user would print labels like this to indicate the location for all the products in the warehouse. The labels would then be applied to the shelving racks in the warehouse to assist customers in finding the product they want to purchase.

Text displays are used in the following example. However, the procedure is identical for graphical displays.

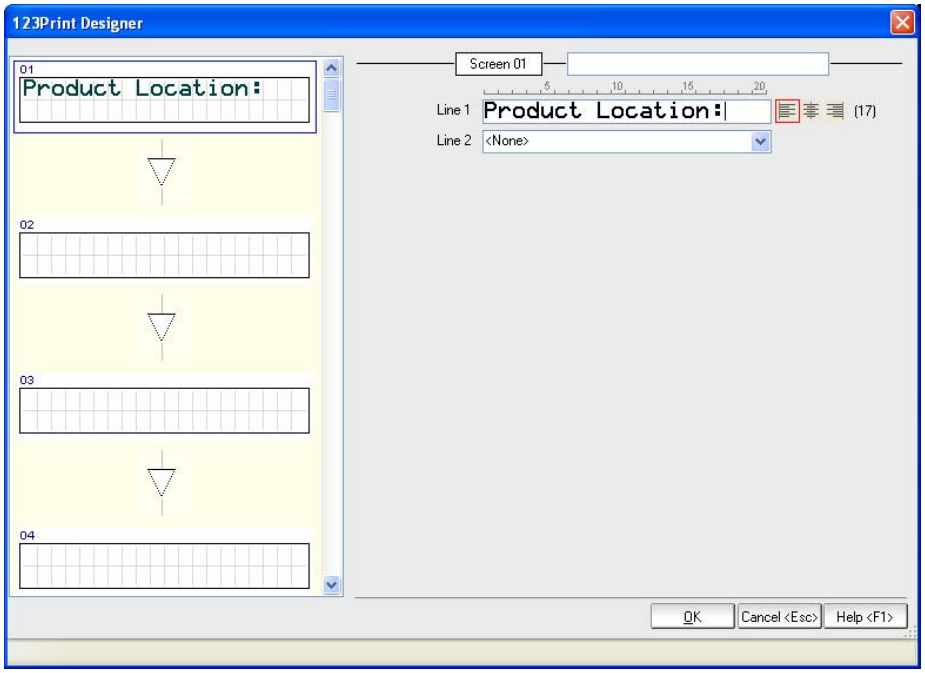


To get started designing your label program,

1 Select the first (from top to bottom) available prompt screen on the left-hand side of the 123Print Designer window

In the Warehouse Shelving example, the program first prompts the User to enter the location in the warehouse for a given product. To do this, on line 1,

2 Type **Product Location:**



Input Methods

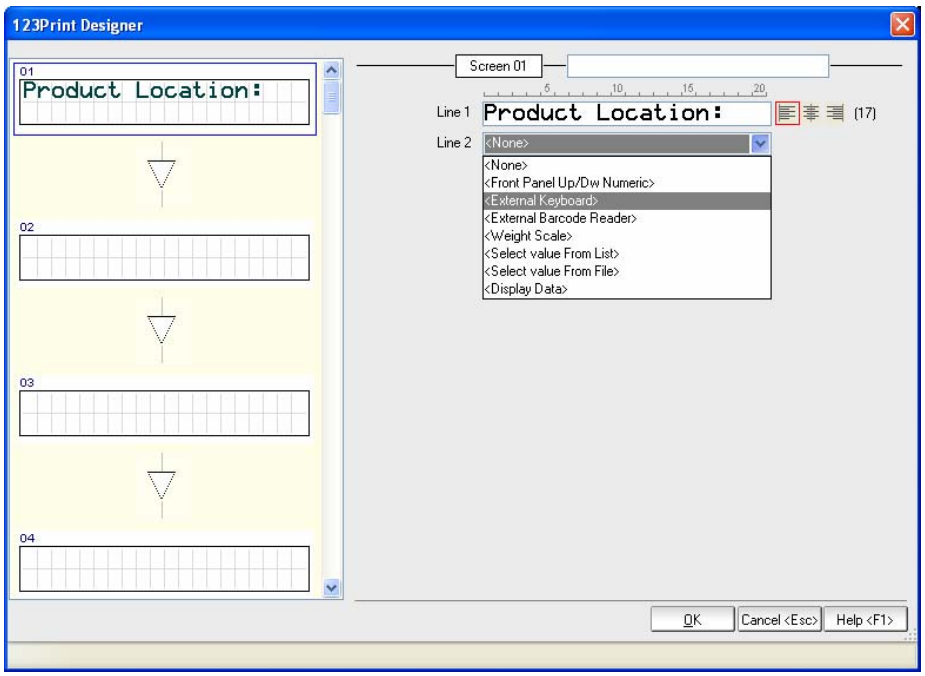
When you enter a prompt, you must select an Input Method for the prompt. This determines how the user will be able to enter data on the given screen. The Input Methods are entered on **Line 2** of a screen prompt. The following Input Methods are available:

- Front Panel UP/Down Numeric
- External Keyboard
- External Barcode Reader
- Weight Scale
- Select Value From List
- Select Value From File
- Display Data

The various Input Methods available for line 2 are discussed in Sections 3.3.2.1 to 3.3.2.7. Please see these sections for more detailed explanations about the Input Methods you can use to create a user friendly interface for your label program.

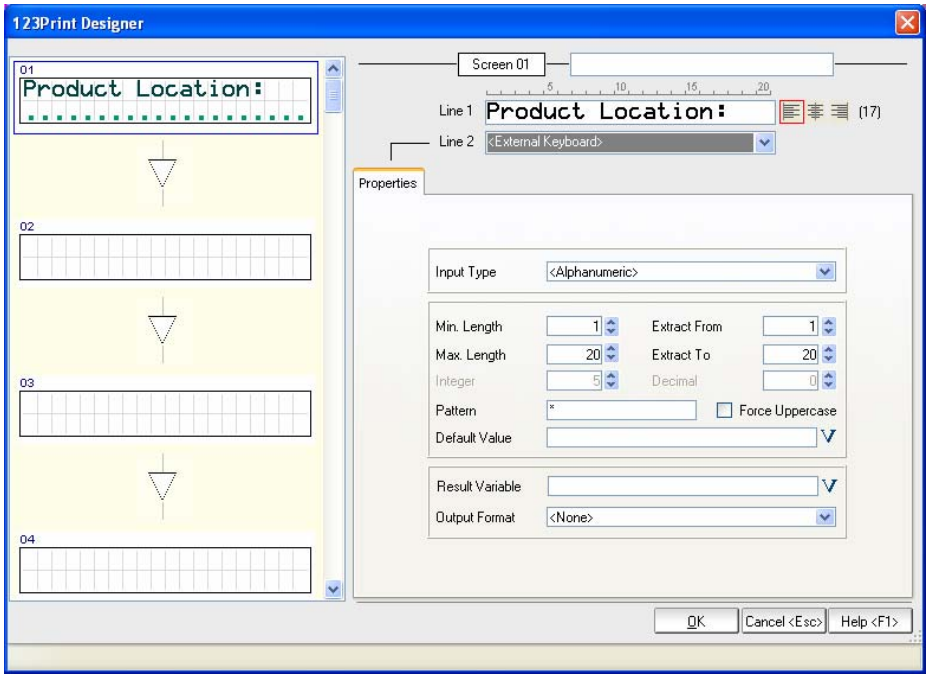
For the Warehouse Shelving example, on line 2 of the screen prompt you are creating,

3 Select **External Keyboard**, as shown here



Once an Input Method has been selected, 123 Print displays a window in which you set the **properties** of the chosen input type. Each Input Method has its own specific set of properties.

The properties window for the External Keyboard input is as shown below



The Warehouse Shelving example only requires two of the input properties to be setup:

- Result Variable
- Force Uppercase

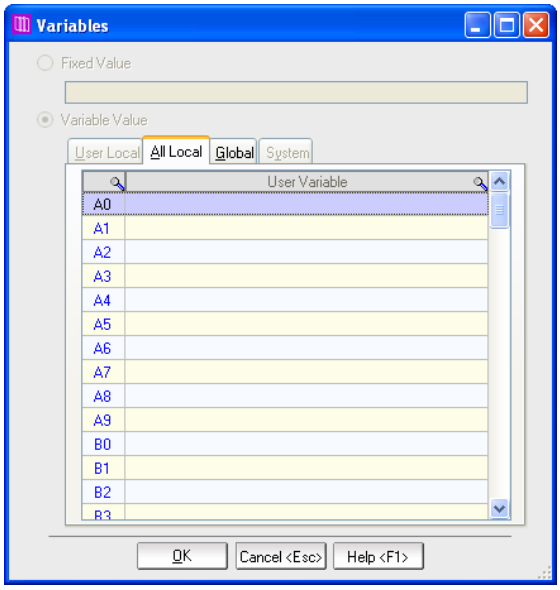
The Result Variable is the variable where the user's input will be saved when they enter a location on the screen prompt.

The Force Uppercase will prevent the user from entering lowercase letters when they enter a location on the screen prompt.

To assign a Result Variable for the location for the Warehouse Shelving example,

4 Click on the V next to the Result Variable field

The **Variables** window is displayed as shown here



Various kinds of Variables may be used in a 123 Print label program. To work with the variables, select one of tabs:

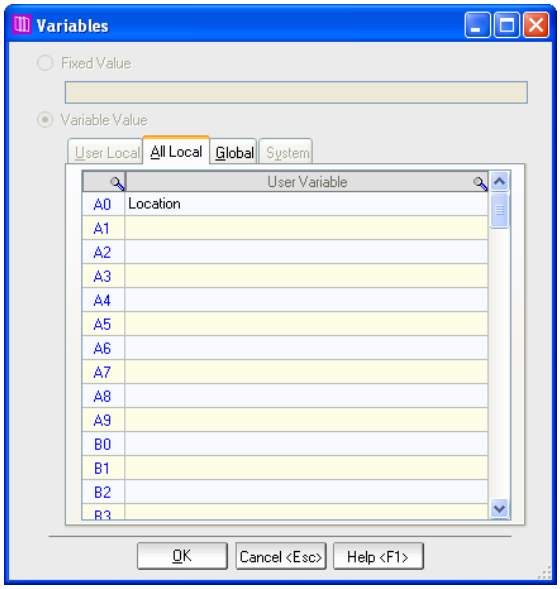
- User Local
- All Local
- Global
- System
  - You cannot write to a System Variable. Therefore, these are not applicable for use as a resultant variable and are grayed out whenever you are creating a resultant variable.

Please see Section 5.1 – Introduction to 123 Print Variables for more detailed information about variables.

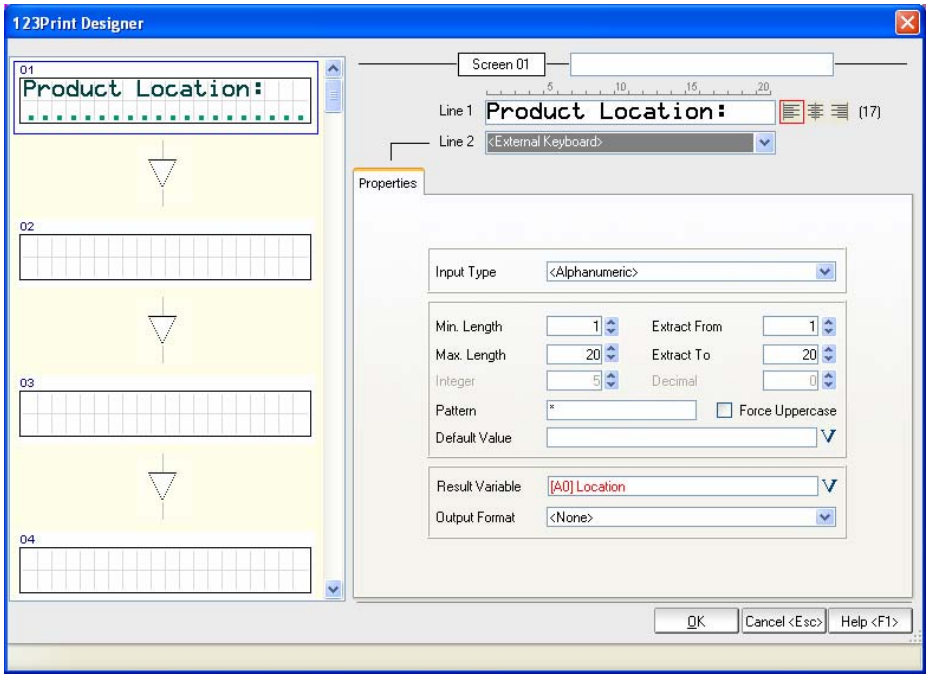
Returning to the Warehouse Shelving example, create the Variable in which you wish to store the input **Location** information:

5 Click on the first available user local variable – in this case, **A0**

6 Type in the name you want to assign to this Variable – in this case, **Location**



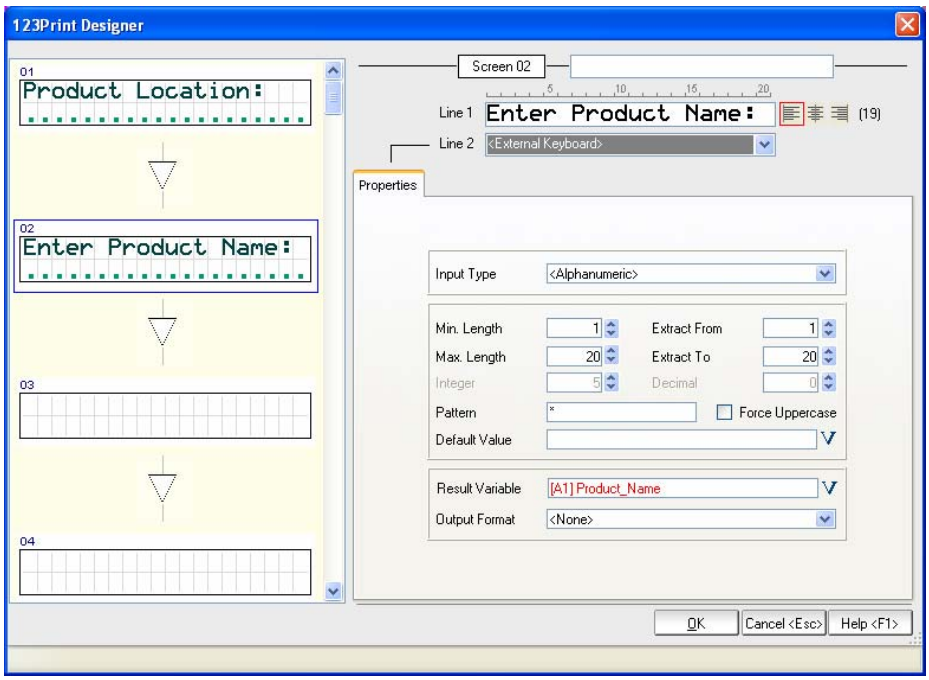
7 Click **OK**



Notice that the **Result Variable** field has now been filled with the name of the Variable you just created: **[A0] Location**.

You have now completed the first prompt screen of your label program. For this Warehouse Shelving example, repeat the above steps to create a second prompt screen— **Enter Product Name:**. Create a Resultant Variable [A1] Product_Name as the storage location for the user input for this screen prompt. This prompt will allow the user to enter the Product Name to be printed on the given label.

After creating the **Enter Product Name:** screen prompt, the 123Print Designer window looks as shown here

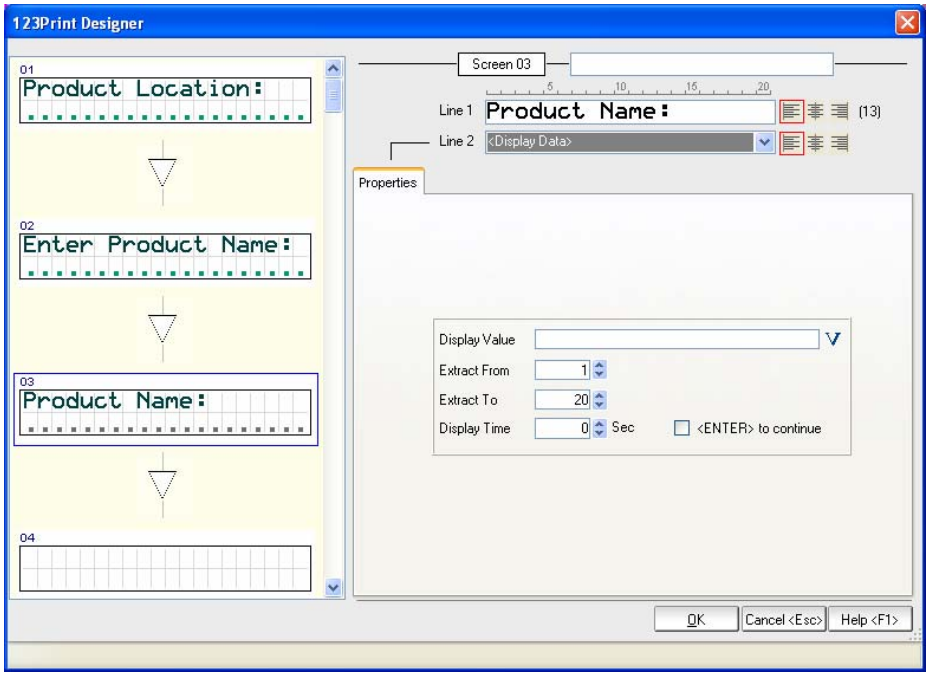


Continuing with the Warehouse Shelving example, create a screen that allows the user to confirm that the product name they entered is correct.

8 Select Screen 3 on the left-hand side of the 123Print Designer window. Then proceed as for Screen 1 and 2, by first entering the text to be displayed on Line 1, and then the action to be performed on Line 2.

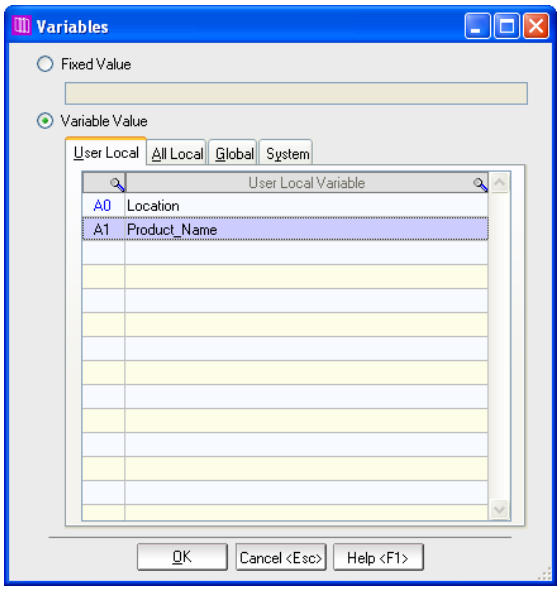
9 Type **Product Name:** on Line 1

10 For Line 2 select the **Display Data** option. This function allows you to display data stored in a variable.



11 To select which Variable is to be displayed, click on the V next to the Default Value field

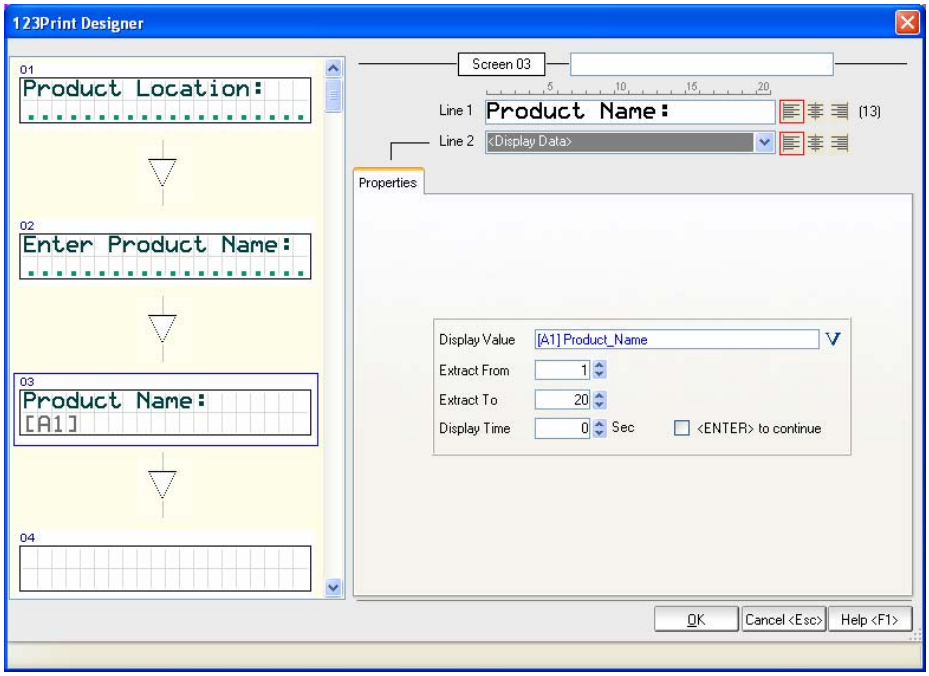
The Variables list is displayed as shown here



12 Click on the User Local tab

13 Select the Variable [A1] Product_Name.

14 Click OK



In order for the user to be able to see this screen and read the displayed data, you must display the screen long enough for the user to be able to read it. To do so, set the **Display Time** option. This will display the screen momentarily only—for the period you set (in seconds).

15 Set the Display Time to 2 seconds

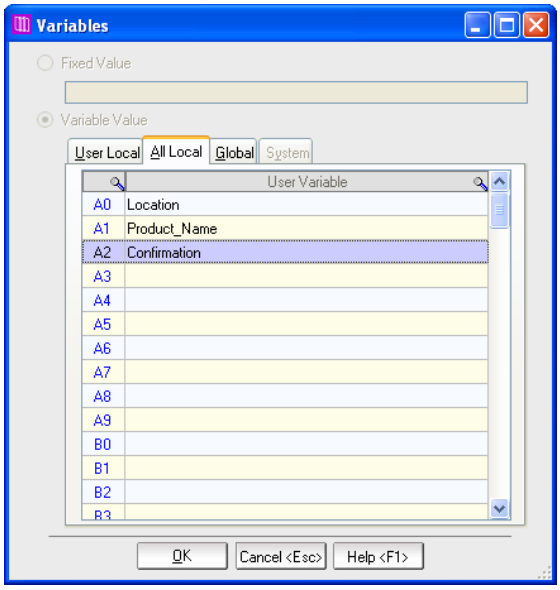
When completed, the properties for Screen 3 are as shown above.

Continuing with the Warehouse Shelving example, create a fourth screen to ask the user to confirm, by entering **Y**es or **N**o, the **Product Name** displayed on the previous screen. The choice made here by the user will determine the next step in the program.

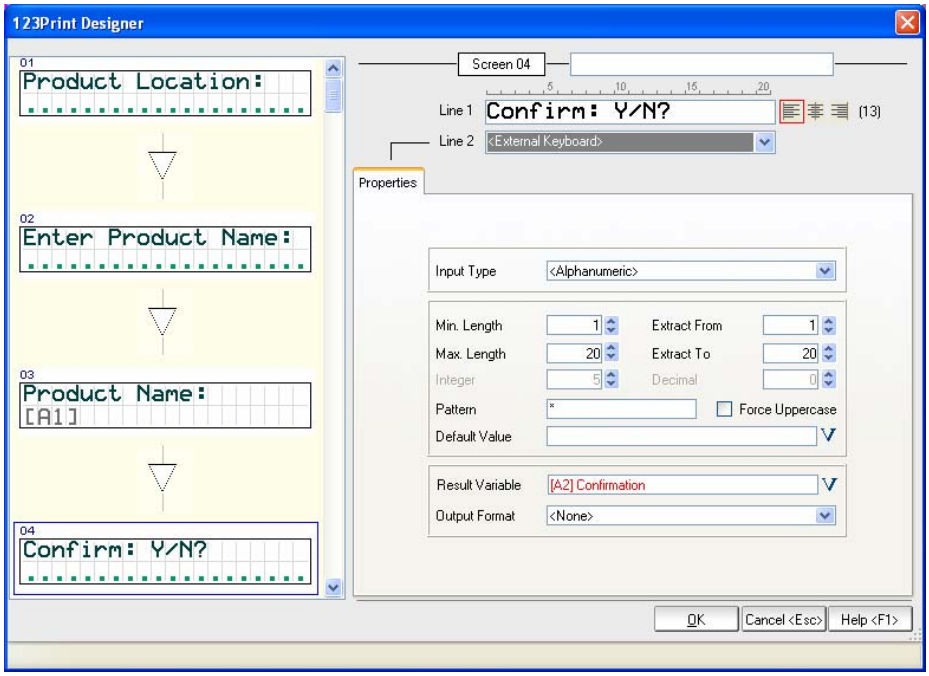
16 Type the text **Confirm Name: Y/N?** on Line 1

17 Select the External Keyboard on Line 2.

18 Create a **Result Variable** using the next available user local variable—in this case, **A2**. Call this Variable **Confirmation** as shown below



When completed, the properties for Screen 4 are as shown here



Processes

In the Warehouse Shelving example, you will want to perform different operations depending upon the input the user gives to the confirmation prompt. If the user enters **Y**es to confirm that the Product Name is correct, you want to proceed to print the label. If the user enters **N**o to indicate that the Product Name is incorrect, you will want to return to the product name prompt screen to give the user an opportunity to enter the Product Name again.

This kind of decision logic and subsequent next operation to be performed is done using commands called processes in 123 Print. Processes are actions performed in-between screen prompts in your label programs. Please reference **Chapter 5 – Using Processes** for complete information on all the processes available in 123 Print.

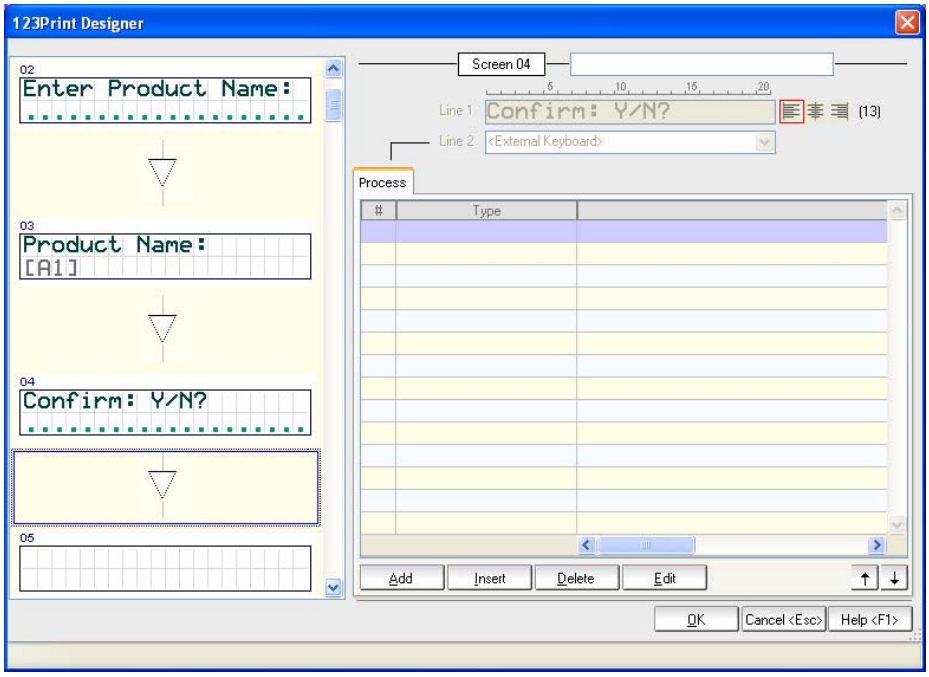
Processes are added by selecting the reverse triangles/arrows  between the screens on the left-hand side of the 123 Print Designer window.

A given process is performed after the related screen prompt is handled. If more than one process is added after a screen prompt, the processes are performed in the order in which they are found in the process list.

To continue with the Warehouse Shelving example,

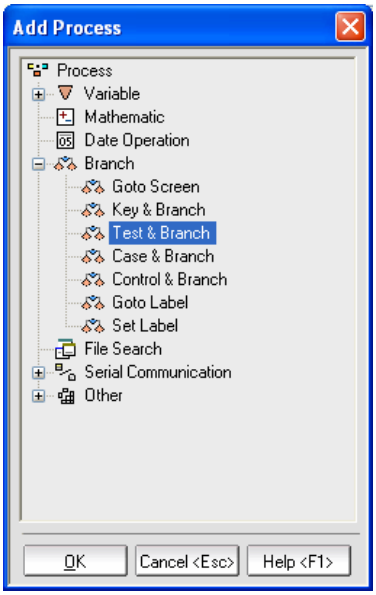
19 Click on the process arrow between screen 4 and screen 5.

A Process list window is displayed on the right-hand side of the 123Print Designer window as shown here



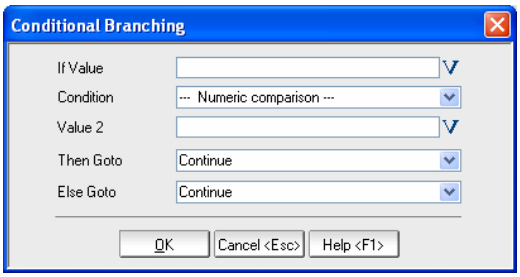
20 Click the Add button at the bottom of the Process list to add a process.

The Add Process dialogue box is displayed as shown here



21 Select the **Test and Branch** process

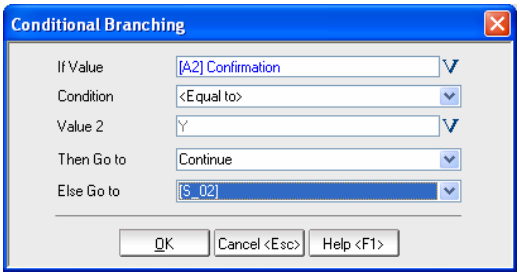
A Conditional Branching dialogue box is displayed as shown here



Using this process, one action will be performed if **Y**es has been entered on screen 4. Otherwise, a different action will be performed. This is referred to as Conditional Branching.

The first thing to do is to choose the Variable on which the test is to be performed. In this example the **Y**es or **N**o input from screen 4 is stored in variable [A2] Confirmation.

22 Select **[A2] Confirmation** in the **If Value** field



The test to be performed is to determine whether the value entered on screen 4 is equal to **Y**.

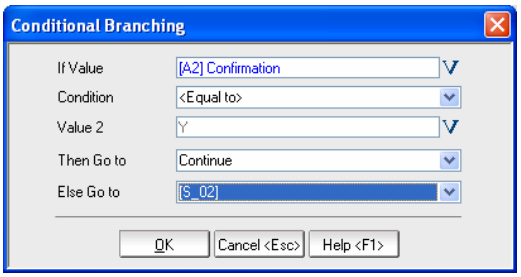
23 Set the **Condition** field to **<Equal to>**

24 Type **Y** in the **Value 2** field.

If the value is **Y**, the program should continue. If, however, the user has entered **N**, or anything other than **Y**, the program should return to the screen which prompts the user to input the product name, that is, Screen 2.

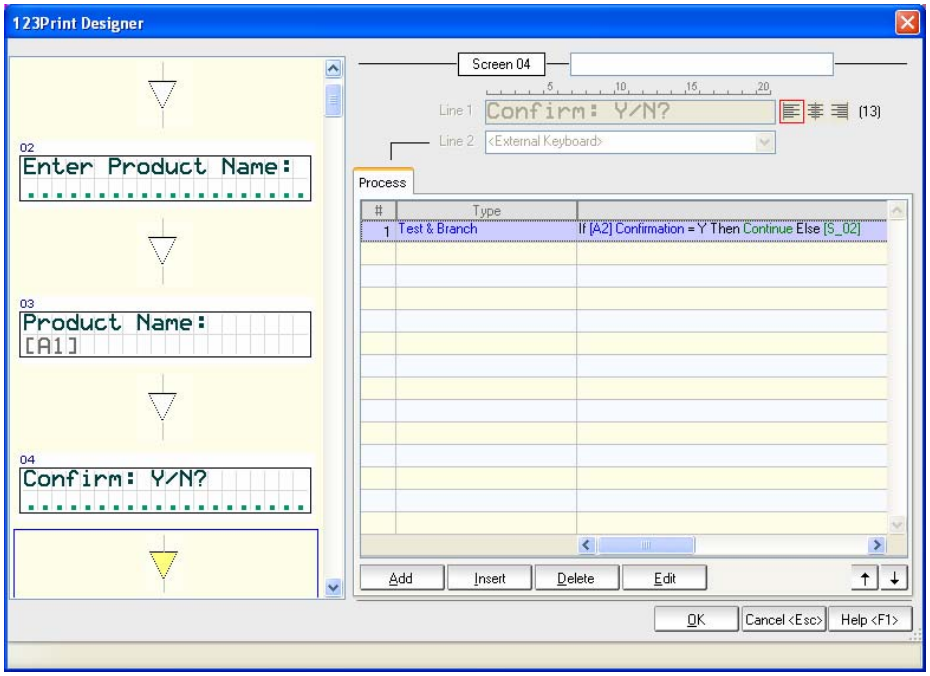
25 Set the **Then Goto** field to **Continue**
26 Set the **Else Goto** to [S_02] (Screen 2).

The final Conditional Branching process entries for this example are as shown here



27 Click **OK**

The process setup is completed. The 123Print Designer window is displayed again, as shown below, with an entry for the Test & Branch process you just defined.



28 Click the **OK** button to accept the screen prompts, program flow, and processes you have created and return to the **Label Properties** window

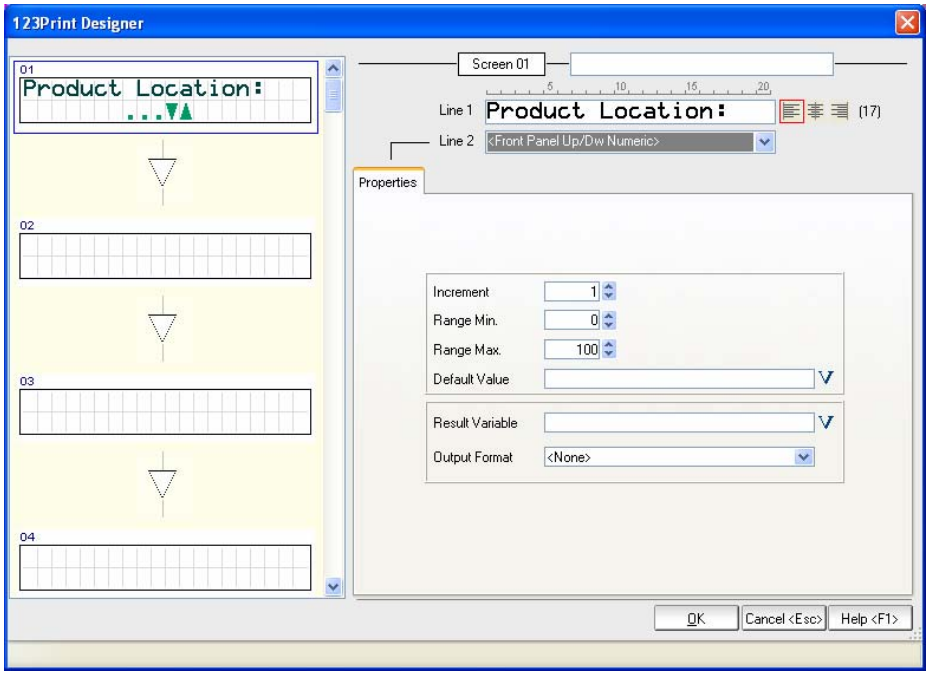
The addition of this Conditional Branching process to the Warehouse Shelving example is intended to show you why, where, and how you add processes to your label programs. See **Chapter 5 – Using Processes** for information about the use of other processes.

3.3.2.1. Front Panel Up/Dw Numeric

General introduction

As discussed in Section 3.3.2 – Variables, Input Methods, several input methods are available for your screen prompts.

This section discusses the Front Panel Up/Dw Numeric input method and the properties you need to set up when you select this input type.



Front Panel Up/Down Numeric allows the User to input a number within the range specified (e.g. 1-100).

For **Front Panel Up/Down Numeric,** the property settings are as follows:

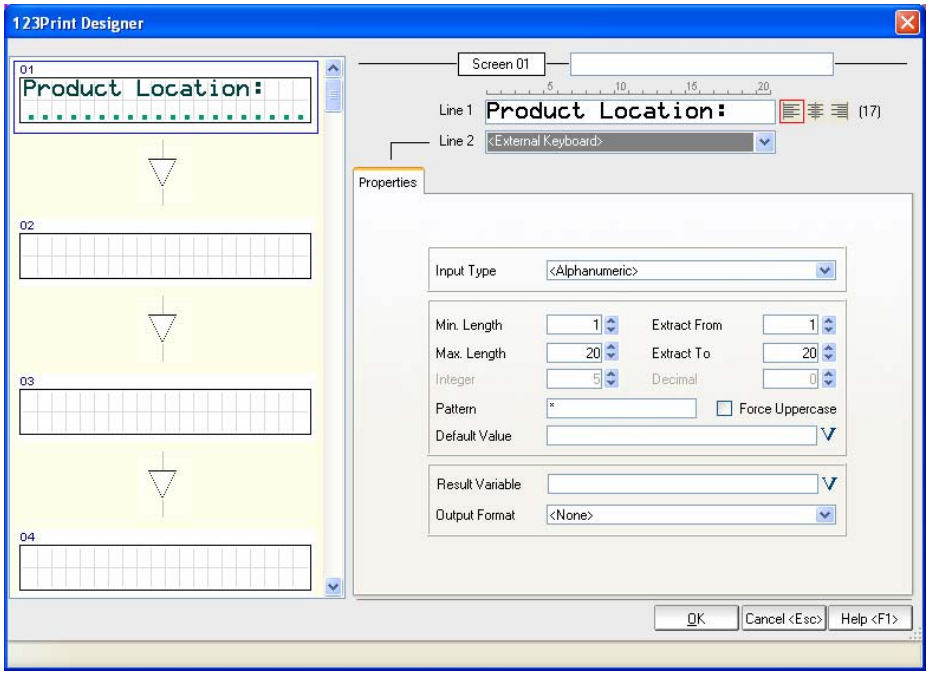
- Increment — Set the rate the number will increment with each up/down click
- Range Min — Set the minimum value for the range. This is the lowest number which will be accepted
- Range Max — Set the maximum value for the range. This is the highest number which will be accepted (maximum value = 999)
- Default Value — Type a value or set a default value using the contents of a variable. If you use a variable, remember to assign a value to the variable someplace in your label program
- Result Value — Select the variable in which the user input should be stored
- Output Format — Set the format you want to use when saving the user input. Several options are available such as fill blank on left, fill zeros on left. Select the appropriate format for your program design.

3.3.2.2. External Keyboard

General introduction

As discussed in Section 3.3.2 – Variables, Input Methods, several input methods are available for your screen prompts.

This section discusses the External Keyboard input method and the properties you need to set up when you select this input type.



External Keyboard allows the User to use an external keyboard for inputs to the label program screen prompts.

For **External Keyboard** the property settings are as follows:

- Input Type — Set the type of input that should be accepted (e.g. Alphanumeric, Numeric, Decimal, …)
- Min. Length — Enter the minimum number of characters needed for the input to be accepted
- Max. Length — Set the maximum number of characters allowed for the input to be accepted
- Integer — Enter the number of integer positions to accept in a number entry (when using the Cash Input Type)
- Decimal — Enter the number of decimal positions to accept in a number entry (when using the Cash Input Type)
- Pattern — Set a required pattern for the input. Possible pattern masks include the letters A-Z, the numbers 0-9 and the special characters $"_ *. These pattern masks and their use are described in Chapter 5 – Using Processes. See Section 5.2.2 Control and Branch for a detailed description about the use of patterns.

  The user will not be able to input characters that do not match the pattern.
- Extract From — Set the starting position if extracting only certain characters from the input

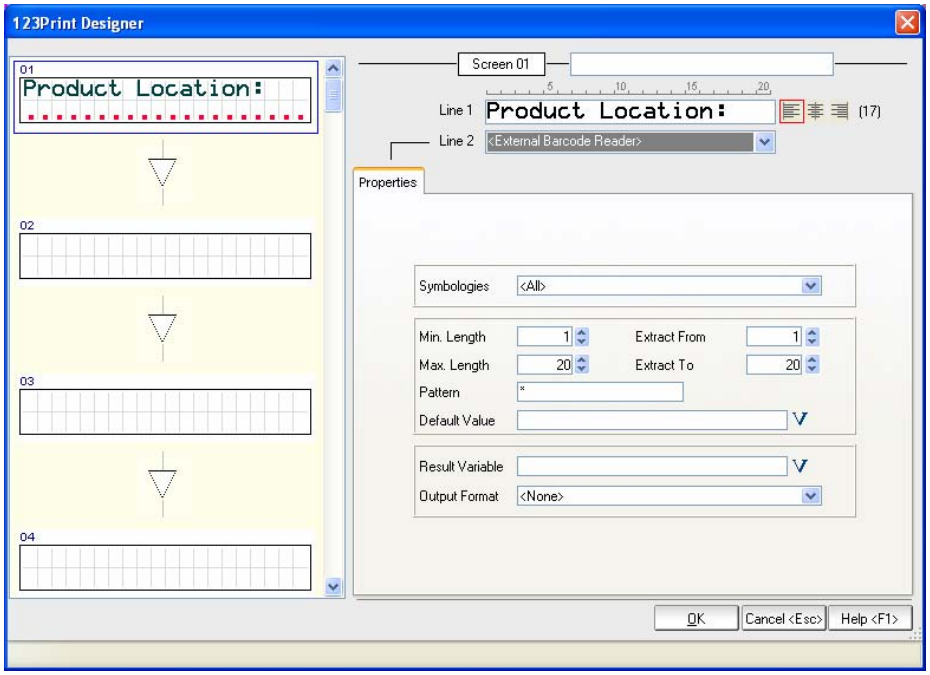
Extract To	Set the ending position if extracting only certain characters from the input For example, if you set **Extract From 4** and **Extract To 6**, you will extract “555” out of 0005550
Force Uppercase	Force Uppercase input. Users will not be able to enter lower case letters into a screen prompt if this option is selected
Default Value	Type a value or set a default value using the contents of a variable. If you use a variable, remember to assign a value to the variable someplace in your label program
Result Value	Select the variable in which the user input should be stored
Output Format	Set the format you want to use when saving the input from the external keyboard. Several options are available such as fill blank on left, fill zeros on left. Select the appropriate format for your program design.

3.3.2.3. External Barcode Reader

General introduction

As discussed in Section 3.3.2 – Variables, Input Methods, several input methods are available for your screen prompts.

This section discusses the External Barcode Reader input method and the properties you need to set up when you select this input type.



External Barcode allows the User to use an external barcode scanner for inputs to the label program.

For **External Barcode reader** the property settings are as follows:

- Symbologies — Set which types of Barcode Symbologies may be read
- Min. Length — Set the minimum number of characters needed for the input to be accepted
- Max. Length — Set the maximum number of characters needed for the input to be accepted
- Pattern — Set a required pattern for the input. Possible pattern masks include the letters A-Z, the numbers 0-9 and the special characters $"_ *. These pattern masks and their use are described in Chapter 5 – Using Processes. See Section 5.2.2 Control and Branch for a detailed description about the use of patterns.

  The user will not be able to input a value that does not match the pattern.
- Extract From — Set the starting position if extracting only certain characters from the input
- Extract To — Set the ending position if extracting only certain characters from the input

  For example, if you set **Extract From 4** and **Extract To 6**, you will extract "555" out of 0005550

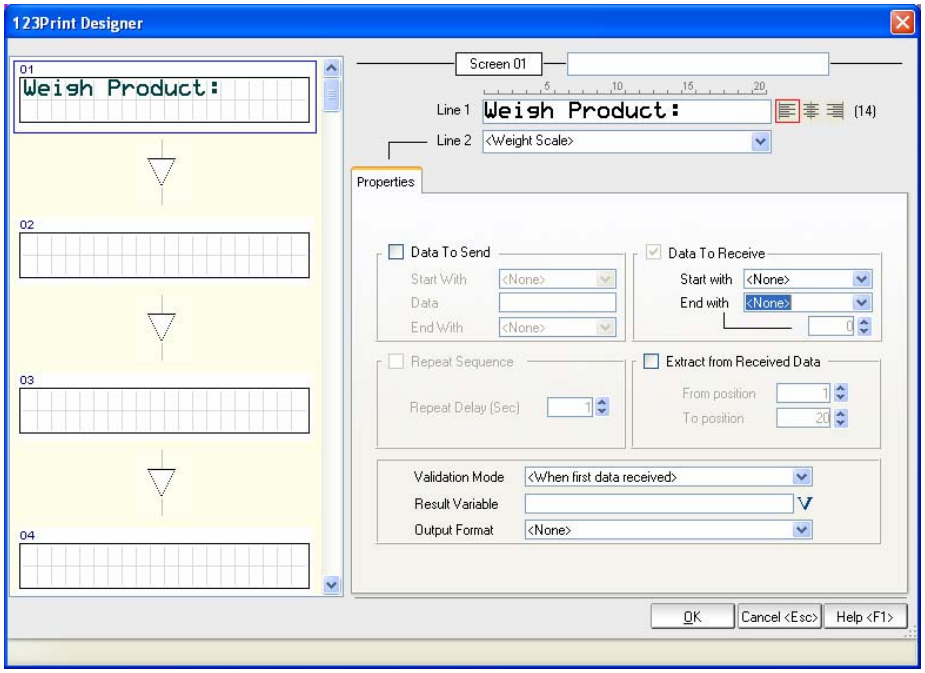
Default Value	Type a value or set a default value using the contents of a variable. If you use a variable, remember to assign a value to the variable someplace in your label program
Result Value	Select the variable in which the user input should be stored
Output Format	Set the format you want to use when saving the input from the external barcode reader. Several options are available such as fill blank on left, fill zeros on left. Select the appropriate format for your program design.

3.3.2.4. Weight Scale

General introduction

As discussed in Section 3.3.2 – Variables, Input Methods, several input methods are available for your screen prompts.

This section discusses the Weight Scale input method and the properties you need to set up when you select this input type.



Weight Scale allows the user to connect and use a weight scale to give inputs to the label program running on the printer.

For **Weight Scale** the property settings are as follows:

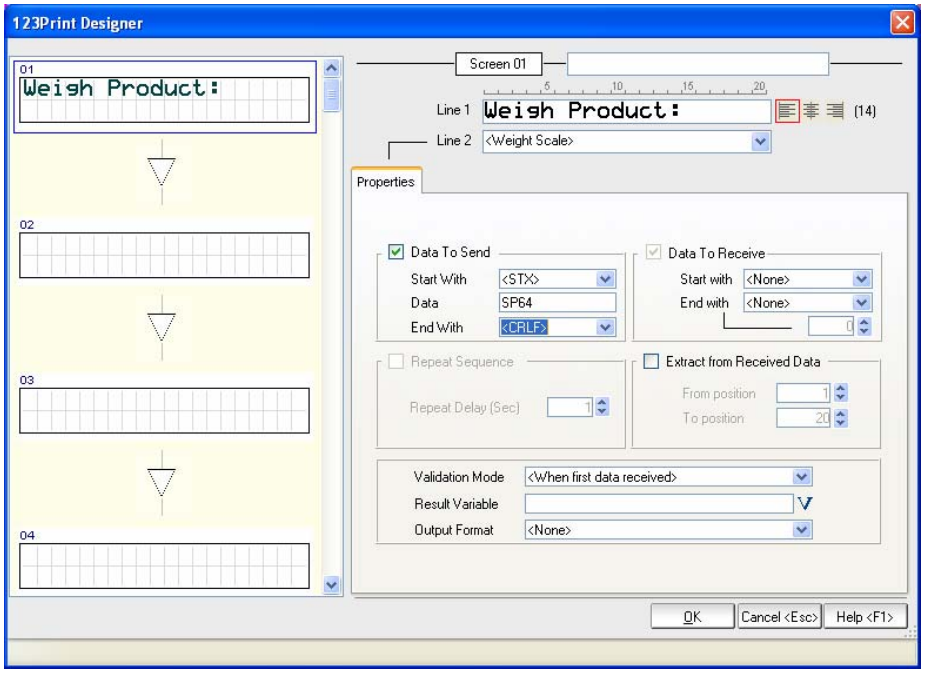
- Data to Send — Check the Data to Send checkbox if your weight scale requires a request from the printer before it will send weight information. The following options allow you to specify the format of this request. You should check the manual for your weight scale to find out how your model requires the request to be formatted
  - Start With — Set a “start of text” character for your request. You can use none, the default STX, or type in your own specific character(s)
  - Data — Enter the weight request command to be sent to the scale
  - End With — Set an “end of text” character(s) for your request to the weight scale

- **Data to Receive** — This function is automatically active and cannot be unchecked. This allows your printer to receive and interpret the data from the weight scale. The following options allow you to indicate to your label program the format of the data coming from the weight scale. Check your weight scale manual for message formatting details.
  - **Start with** — Set the "start of text character" the label program will look for as the start of a valid data stream from the scale
  - **End With** — Your label program can determine that it has received all the data from the scale in one of two ways—by looking for an "end of text" character(s) in the data stream from the scale, or by receiving a specified number of characters after the STX has been received. Select the appropriate "end of text" character(s), or select <Number of char>. If you select this option, enter in the accompanying property box the exact number of characters to be received from the weight scale.
- **Extract from Received Data** — Check the checkbox beside this option if you wish to extract only a specific set of characters from the received data
  - **From Position** — Set the starting position for the extraction
  - **To Position** — Set the ending position of the extraction

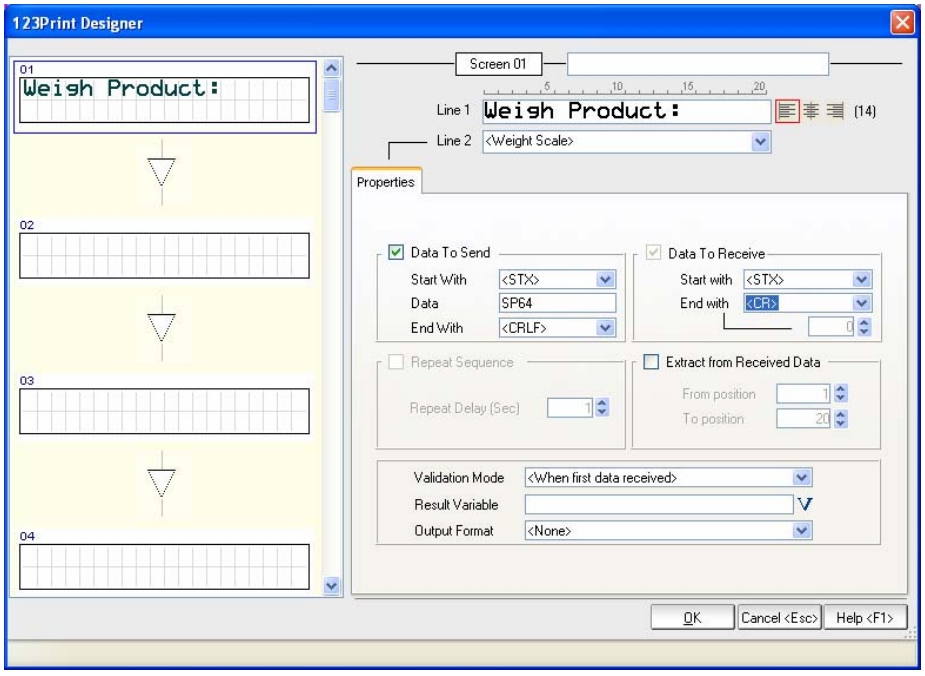
  For example, if you set **From Position 4** and **To Position 6**, you will extract "555" out of 0005550
- **Validation Mode** — Set the mode with which the data received from the weight scale should be validated. For example, you can select to only validate an input after having received two consecutive identical weight measurements from the weight scale
- **Repeat Sequence** — If you have set the Validation Mode to validate only after having received the same data twice, you should specify the delay (in seconds) you want to wait between accepting consecutive inputs from the scale. This will allow you to eliminate any bounce from the scale and be confident that the weight measurement you receive is accurate.
- **Result Variable** — Select the variable in which the input from the weight scale should be stored
- **Output Format** — Set the format you want to use when saving the weight data from the scale. Several options are available such as fill blank on left, fill zeros on left, replace leading zeros with blanks, etc. Select the appropriate format for your program design.

Following is an example to illustrate the use of some of the options described above.

If the request to ask your scale to send weight information has the following structure: <STX> as a start of text character, followed by the command SP64, and ending with a <CRLF> (Carriage Return, Line Feed), then your Data To Send settings should look as shown below:



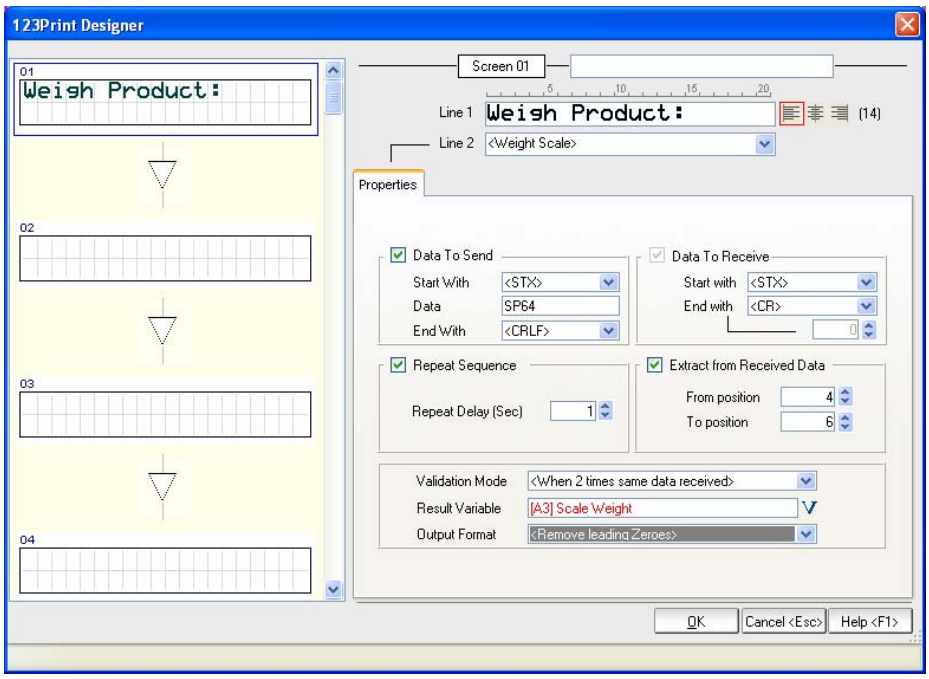
If, in return, you weight scale's return data stream starts with <STX>, followed by the weight, and ends with a <CR>, your Data To Receive settings should look as shown below



When the entire data stream is received from the scale, the <STX> and <CR> are automatically stripped off—leaving only the information you are requesting, i.e. the weight.

The remaining weight data may be further refined by selecting an output format, such as stripping leading zeros. The result may then be saved in a variable for additional processing or printing.

Below shows what the complete Input Method properties might be for a Weight Scale input.

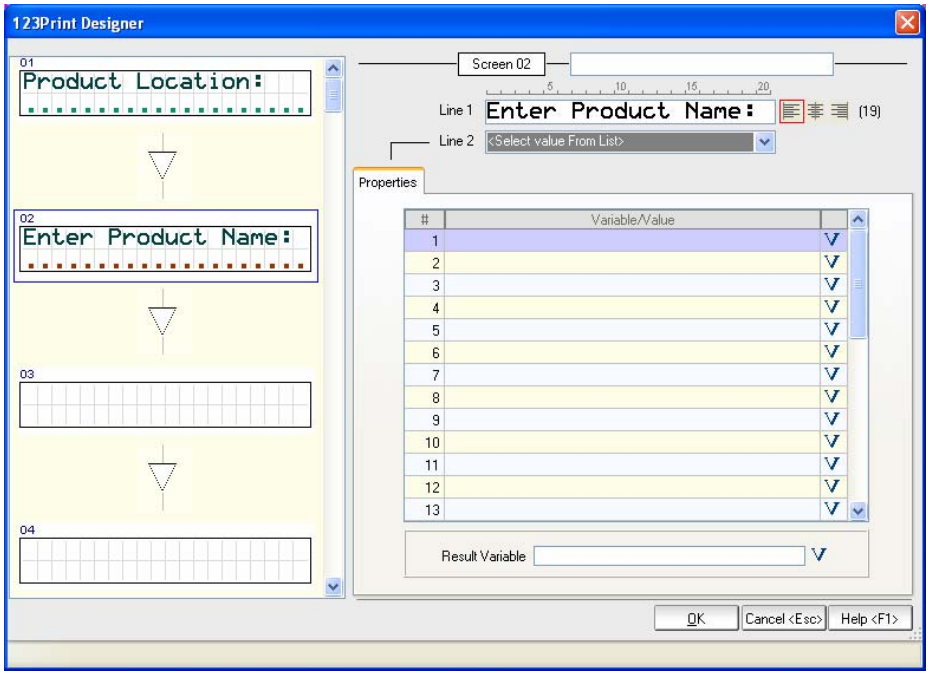


3.3.2.5. Select Value from List

General introduction

As discussed in Section 3.3.2 – Variables, Input Methods, several input methods are available for your screen prompts.

This section discusses the Select Value from List input method and the properties you need to set up when you select this input type.

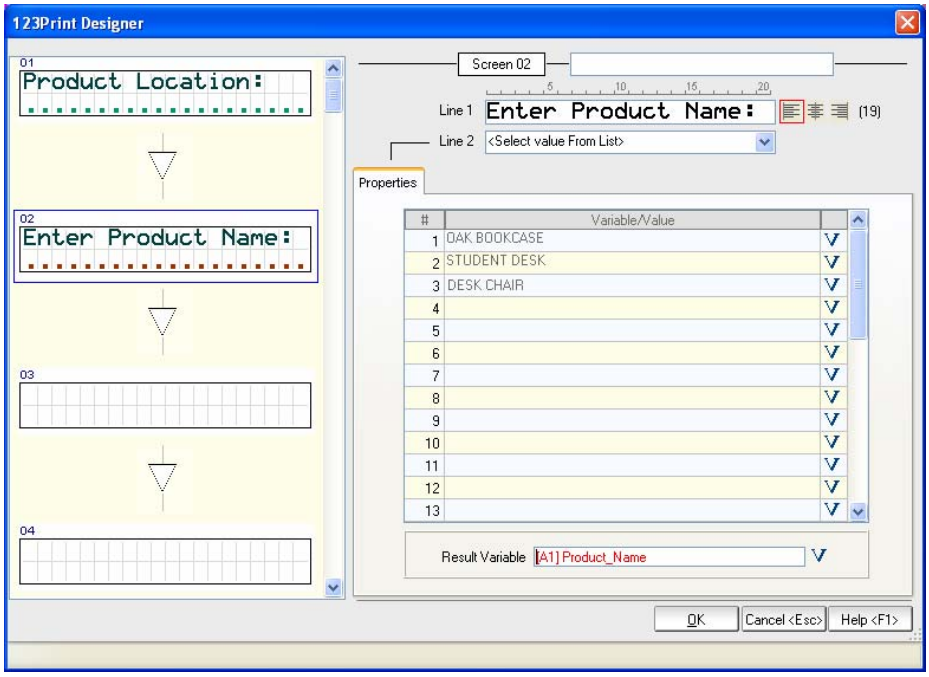


Select Value From List allows the User to select the input value from a predefined list of values or from existing variables.

For **Select Value From List** the property settings are as follows:

- Variable/Value selection — Create the list from which the user will choose the desired input. Create the list by typing entries directly in the property table provided. Alternatively, select existing variables to create the list. To select a variable, click the variables icon beside the table entry and select the desired variable from the Variables list box.
- Result Variable — Select the variable in which the user input should be stored

Following is an example to illustrate the use of some of the options described above.

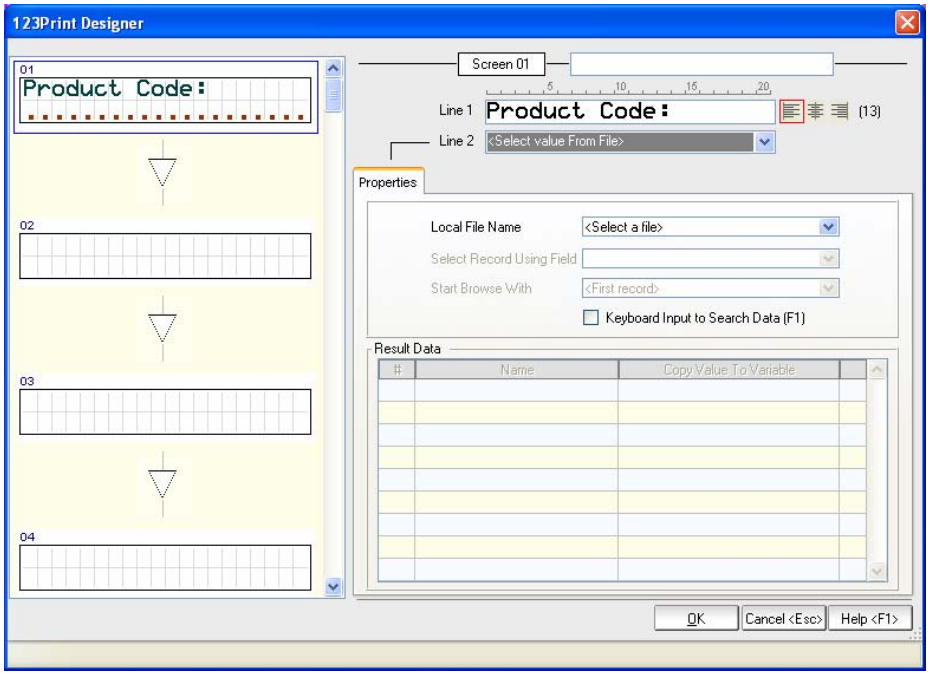


3.3.2.6. Select Value from File

General introduction

As discussed in Section 3.3.2 – Variables, Input Methods, several input methods are available for your screen prompts.

This section discusses the Select Value from File input method and the properties you need to set up when you select this input type.



Select Value From File allows the user to select the input from a predefined lookup file (please reference Section 3.4 – Lookup Files).

For **Select Value From File** the property settings are as follows:

- Local File Name — Select the file to be used to lookup the desired input. Files are available for selection here only once they have been added to your label program as Lookup Files
- Select Record Using Field — Select the field in your file which you want to use as your browse or search field.
- Start Browse With — Indicate from which point in the file you want to begin your browse.
- Keyboard Input to Search Data (F1) — Check this checkbox to allow the user to enter, via an external keyboard, the item for which they want to search in the file. The user first presses the F1 key to enable the keyboard entry.
- Copy Value to Variable — Select the variable(s) in which the user input should be stored

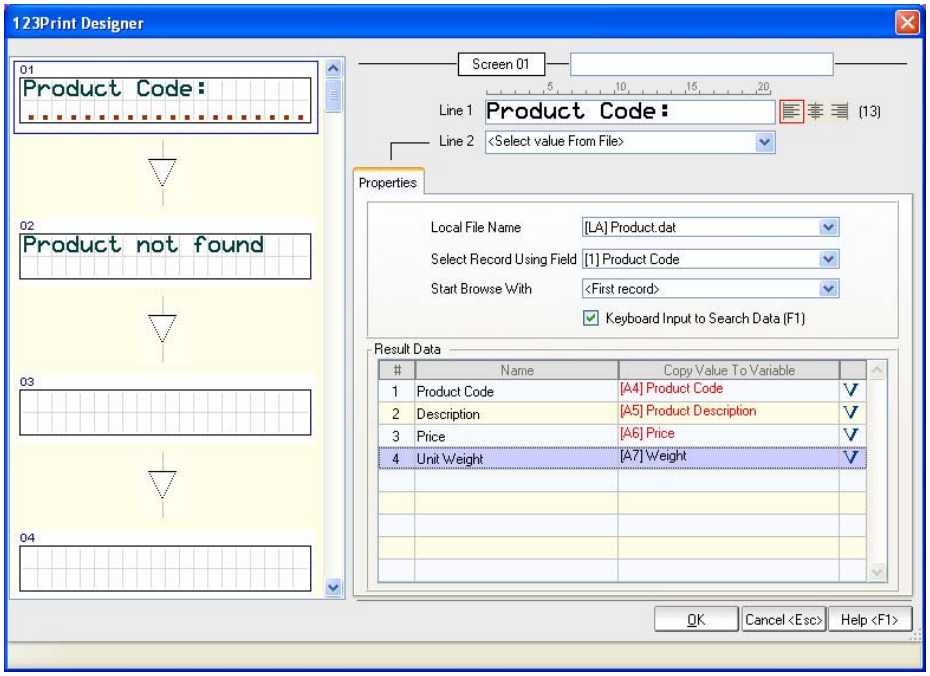
Example

Following is an example to illustrate the use of some of the options described above.

This example involves a product file (Product.dat) with 4 fields per record. The first field in each record is a Product Code. If in the **Select Record Using Field** you select the Product Code, then this is the field that is used for browsing and searching.

If the Keyboard Input checkbox is not checked, the Product Codes are displayed on the printer and the user simply scrolls through the list until the desired entry is found. The user then presses <ENTER> to select that entry as the input.

If the Keyboard Input checkbox is checked, the user presses F1 to enter, via a keyboard, the item they want to lookup. The user input is then used to initiate a search in the file. This approach can help find an item more quickly than browsing for the item by scrolling through the entire list. If a match is found, the entry is displayed and the user presses <ENTER> to select that entry as the input. The user can also use this as the starting point to browse for a different item to enter.



Once the desired entry is found, the fields from that record are saved in the variables you assign in the **Copy Value to Variable** fields. In the Result Data table, click the V beside each field to which you want to assign a Result Variable.

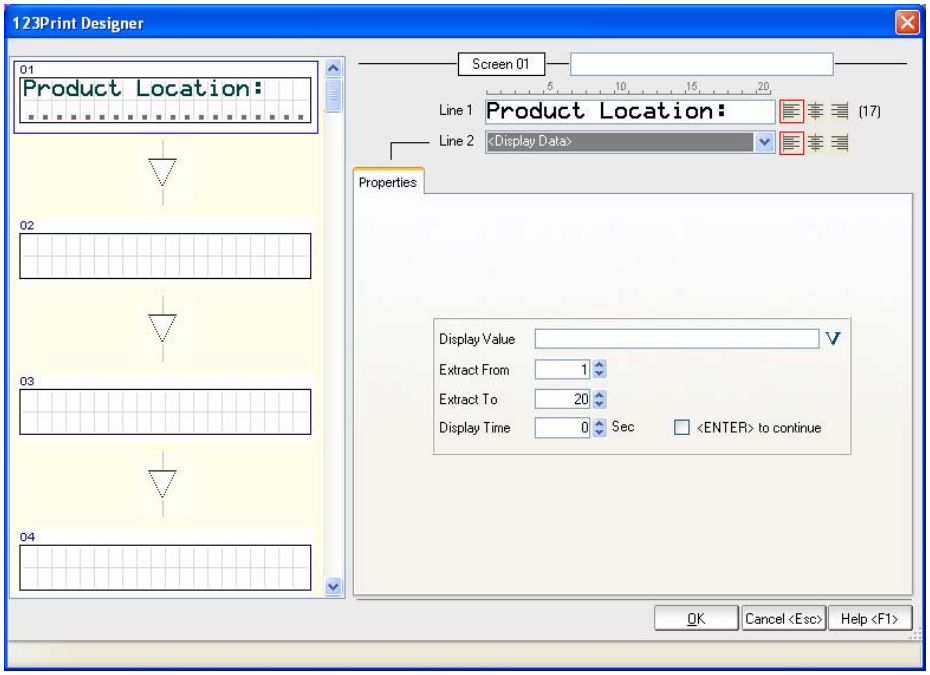
In the above example, when the desired Product Code is found in the file, all the fields in that record are copied to local user variables [A4], [A5], [A6] and [A7]. You are not required to assign a local user variable to every field in the file record. You only need to assign local user variables for the data you want to save for further processing or printing.

3.3.2.7. Display Data

General introduction

As discussed in Section 3.3.2 – Variables, Input Methods, several input methods are available for your screen prompts.

This section discusses the Display Data input method and the properties you need to set up when you select this input type.



Display Data allows the user to view the data stored in a variable.

For **Display Data** the property settings are as follows:

- Display Value — Type a value or set a value using the contents of a variable. If you use a variable, remember to assign a value to the variable someplace in your label program
- Extract From — Set the starting position if extracting only certain characters from the input
- Extract To — Set the ending position if extracting only certain characters from the input

  For example, if you set **Extract From 4** and **Extract To 6**, you will extract "555" out of 0005550
- Display Time — Set the number of seconds this screen should be displayed before the program proceeds to the next screen
- <ENTER> to continue — Check this checkbox to force the user to press the <ENTER> button to proceed. At the same time, set the Display Time to zero. If the display time is not equal to zero and the display time expires without a user <ENTER>, the program will continue without waiting for the user to press the <ENTER> button.

3.3.3. Mapping

General introduction

Mapping is the function in 123 Print that allows you to convert a static label or label template into a dynamic label.

Firstly, you require a static label that has the layout you want for the dynamic label. Next, you must associate this label with your 123 Print project as described in Section 3.3 – Labels. Then, using the static label as a template, map the variable data to the elements on the static label.

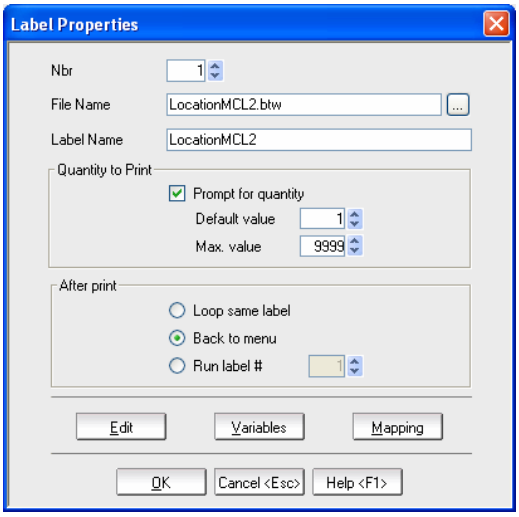
The label to be mapped must be of the format *.btw, *.dpl, or *.txt providing the *.txt file contains DPL code.

This section discusses 123 Print's Mapping function to create labels that print with variable content.

Mapping

The last step to complete your label program is to make the printed label display the variable data entered using the Variables function as described in Section 3.3.2 - Variables. Printing the variable data on a label involves "mapping" the variables to the elements on the selected static label.

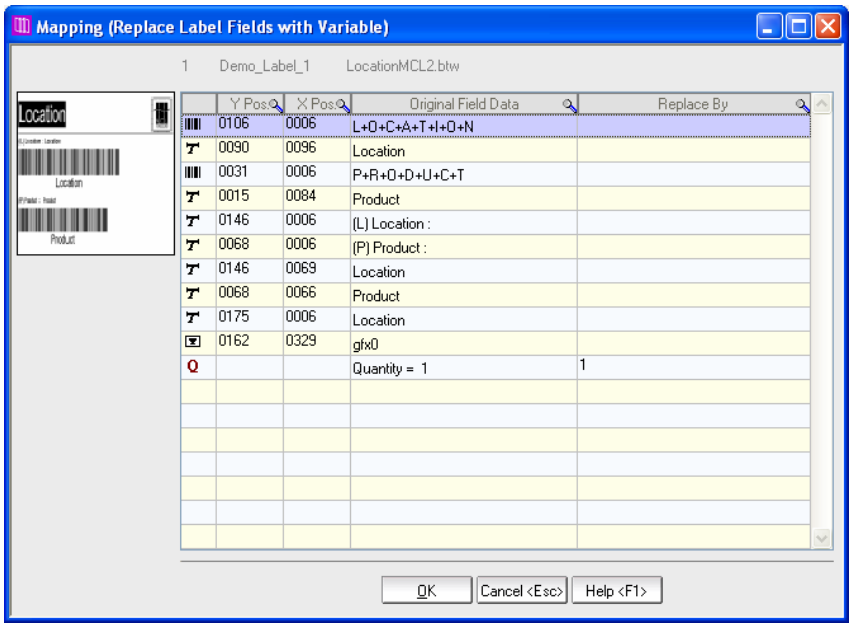
As an example, consider the label, LocationMCL2.btw, that was added to the 123 Print project in Section 3.3 – Labels.



To map this label, in this label's Label Properties dialogue box,

1 Click the Mapping  button

The Mapping window is displayed as shown below



In the **Mapping** window, you will see the various elements (text fields, barcodes, etc) of the given label.

If you have BarTender installed and activated on your system and are using a BarTender label, you will see a thumbnail of your label on the left of the Mapping window.

The Mapping window gives you the following details about your label:

- Type of label element is indicated by a variety of icons that are displayed if BarTender is installed and you are working with *.btw label:
  - icon identifies a text element using an internal printer font
  - icon identifies a text element using a scalable font
  - icon identifies a barcode element
  - icon identifies a barcode element with human readable text
  - icon identifies an image element
  - icon identifies the default print quantity for this label
- X and Y position of the field on the label
- The original static (default) data for the field (Original Field Data)
- The data which should replace the default data (Replace By)

Replace By

Replace By allows you to associate your different Variables with the label elements, so that what is stored in the selected variable(s) will replace the original label data at the time of printing.

Simply double-click in the **Replace By** column on the element you wish to replace and select the **Variable** whose content should be used instead of the original default data. You may also enter a fixed value instead of a variable.

If you want to replace a graphic image, the variable should contain the name of the graphic image as it is called on the printer after being downloaded to the printer.

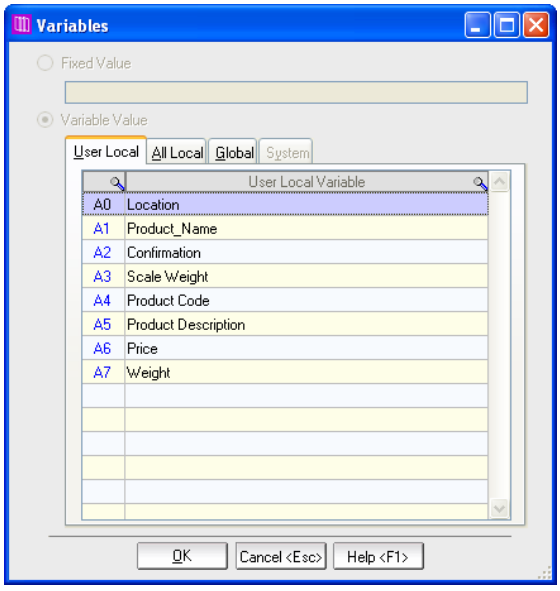
Note: If you are using BarTender to create your labels and if you want to map a variable graphic image to a graphic element on a label, be sure the label only includes one image. Use native fonts. For barcodes, choose the Print Method option: “Bar codes and human readable text controlled by the printer.”

For more information please see Appendix E – Mapping Label Graphic Elements.

Returning to the Warehouse Shelving example started in Section 3.3.2 - Variables, the following describes how the LocationMCL2.btw label would be mapped using the variables created in the example.

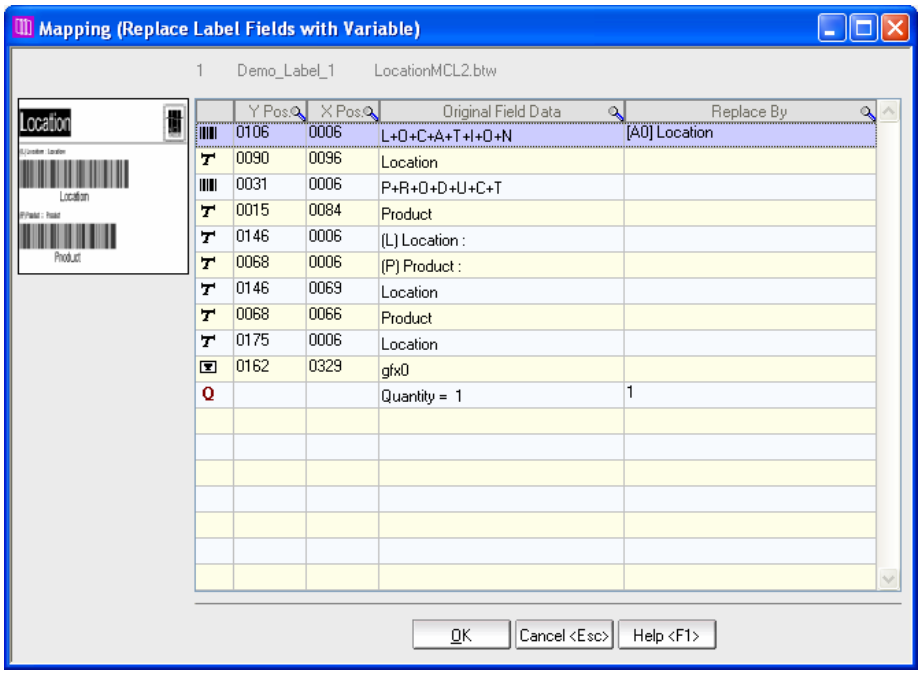
2 Double-click on the **Replace By** field for the first entry in the Mapping table – this element is the first of the two Barcodes on the example label

The Variables list is displayed as shown here



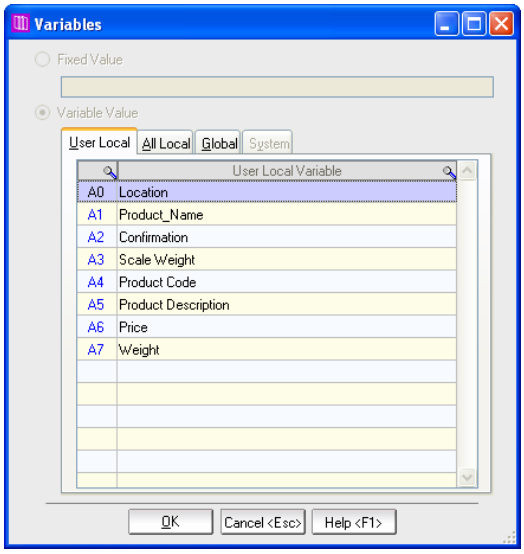
3 Select the Location variable ([A0] Location)
4 Click OK

The variable [A0] Location is mapped to the first barcode as shown below. When the label is printed, the contents of the [A0] Location variable will be printed as a barcode where the barcode “location” was printed in the static label.



5 Double-click on the **Replace By** field for the second entry in the Mapping table – the Human Readable beneath the first Barcode

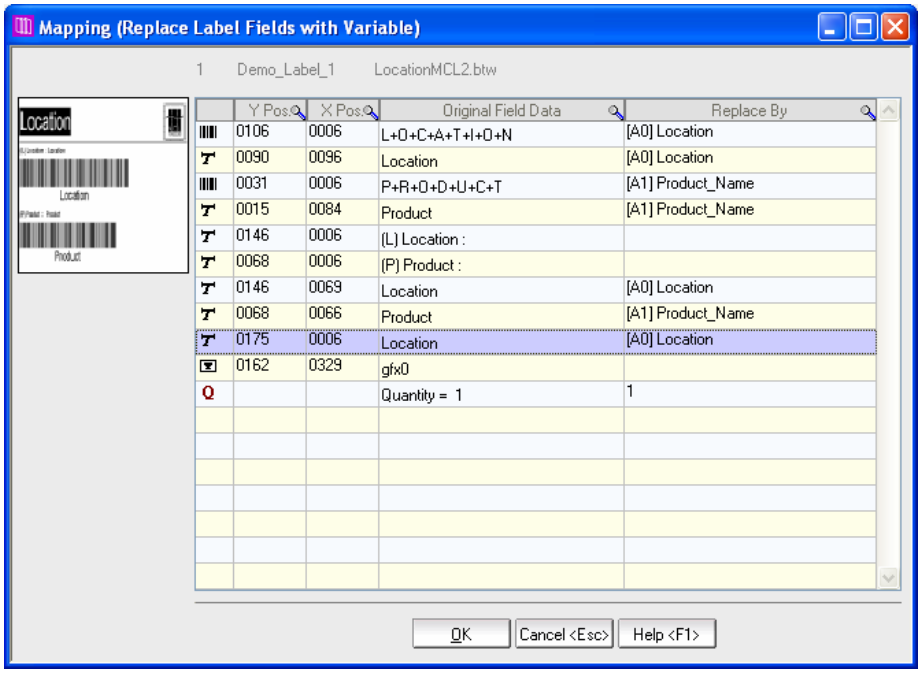
Again the Variables list is displayed. Select the variable to be associated with this text field. When the label is printed, the contents of that variable will be printed as text where the text “location” was printed beneath the barcode on the static label.



6 Repeat the above steps for the remaining elements of the label. Select an element and assign a variable to it.

If no **Replace By** assignment is made for a given element, the original static data will be printed for that element.

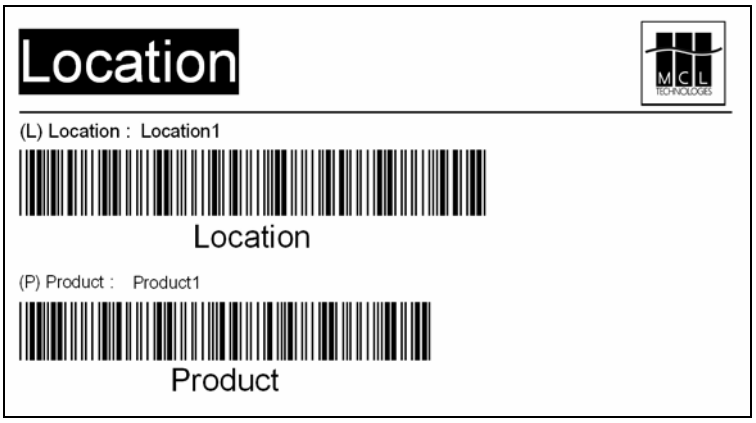
When all the element-to-variable mapping assignments are completed, the mapping of the example label looks as follows



7 Click OK to return to the Label Properties window

Result Labels

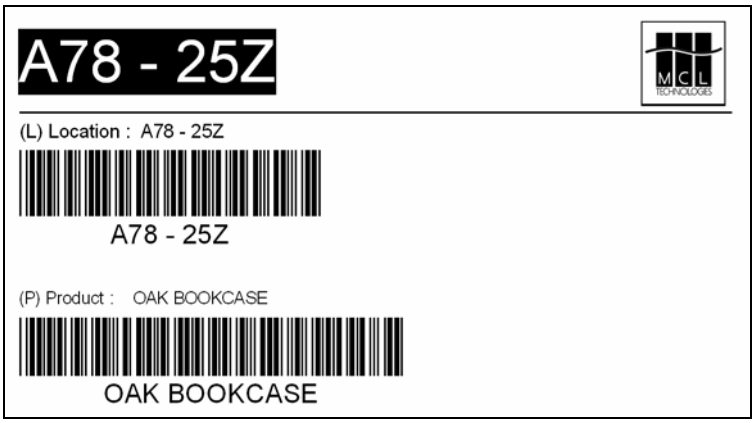
The static LocationMCL2.btw label used in this Warehouse Shelving example looks as follows:



When you run the label program you created for the Warehouse Shelving example, your screen prompts will request Location and Product Name for a given product. If you input a location of A78 – 25Z and a product name of OAK BOOKCASE, then the variables you created will contain the following:

- [A0] Location = A78 – 25Z
- [A1] Product_Name = OAK BOOKCASE

When you print the label using these variables and using the mapping assignments made in the Mapping section, the resulting dynamically created label will look as shown here:



8 Click OK to return to the Labels List window as shown below

Labels List

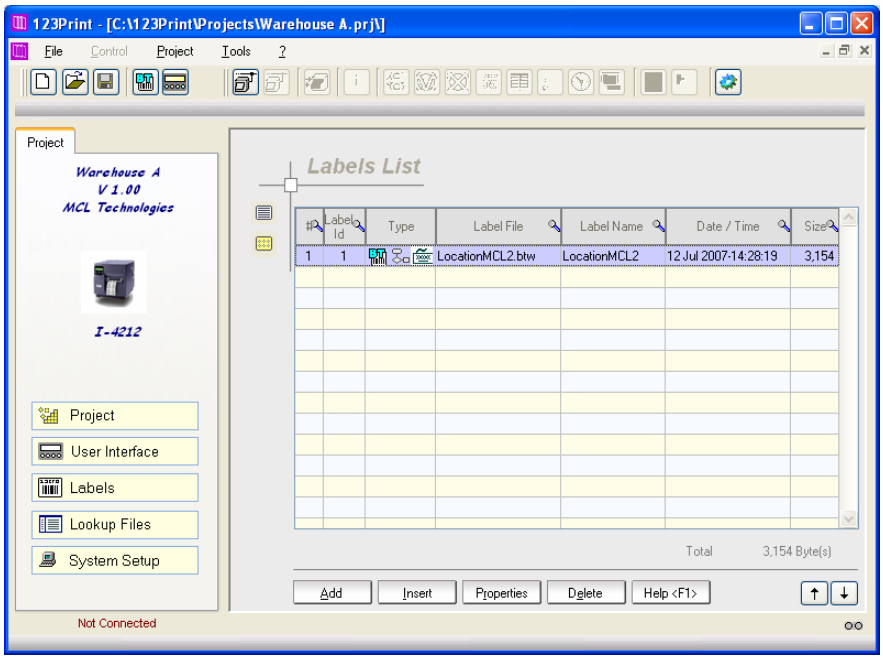
When you return to the Labels List window, an entry will have been added for your label.

Notice that several buttons are now active across the bottom of the window. These represent actions you can perform on the label.

Right click on the label entry to get a more exhaustive list of the possible label actions—Add, Properties, Delete, Insert, Duplicate, Generate DPL File, Move Up and Move Down. Select the desired action.

123 Print allows you to view the labels associated with your project in two different ways—as a list or as thumbnails.

To see your labels in a list view, click the view list icon on the left of the Labels List window. Your labels will be displayed in the Labels List as shown here

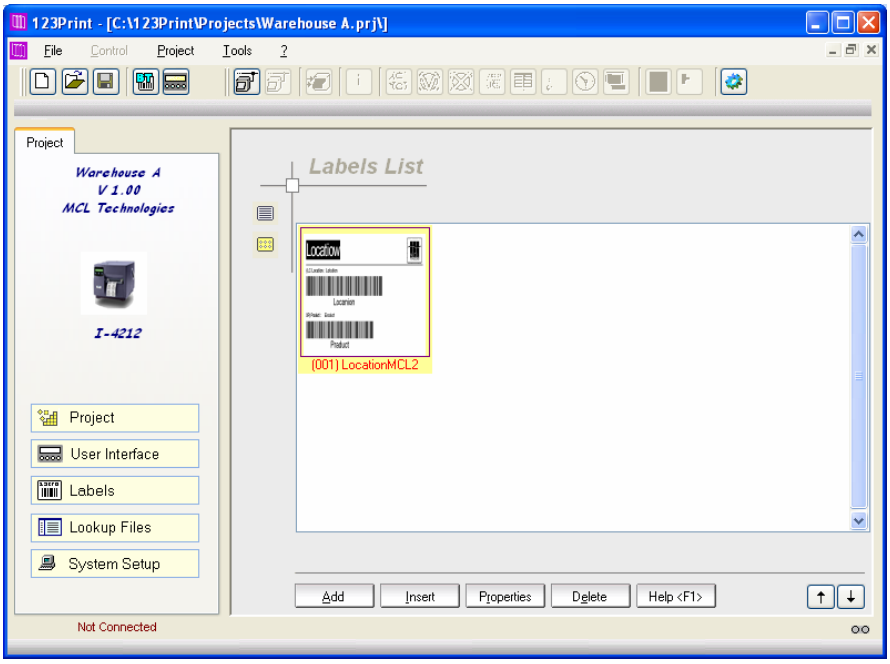


Notice that in the **Type** column, icons are displayed with your label entry:

- The **Process** icon indicates that you have processes associated with this label
- The **Mapping** icon indicates that you are mapping certain elements of this label
- The BarTender icon indicates that this is a BarTender *.btw label

If you have BarTender installed on your system and you are working with *.btw label files, you can also view your labels as thumbnails. This allows you to quickly recognize which label you want to work with when you have several labels attached to your project.

To see your *.btw labels as thumbnails, click the view list icon on the left of the Labels List window. Your labels will be displayed in the Labels List as shown here



Adding more labels

To add a new label, simply click on the Add button.

If you wish to add a new label and have it appear before the existing label in your Labels List, you should use the Insert button.

If you wish to duplicate your existing labels, including the screens associated with it – so as to only need to make minor modifications for the second label rather than having to start from nothing – you can simply **right-click** on the existing label and choose **duplicate**.

If you wish to re-arrange the sequence in which the labels appear in your labels list, you can do so using the ↑ ↓ arrows in the bottom right-hand corner of the window.

Deleting a label

If you delete Delete a label from your project, please note that the label and all of the screens associated with it are **fully and permanently** removed from your project. They cannot be recovered, even if you do not save the project.

It is therefore highly recommended that you always save the original label as a **master copy** in your default label folder. 123 Print will automatically create a **working copy** of the label when associating it with your project. If you proceed this way, only the **working copy** will be deleted.

3.4. Lookup Files

General introduction

123 Print allows you to use lookup files in your printer project. Using printer inputs, such as a weight scale, and a lookup file you could print, for example, labels that include a product code, product description, product weight, and a date stamp.

This section describes how to create Lookup files for your 123 Print projects.

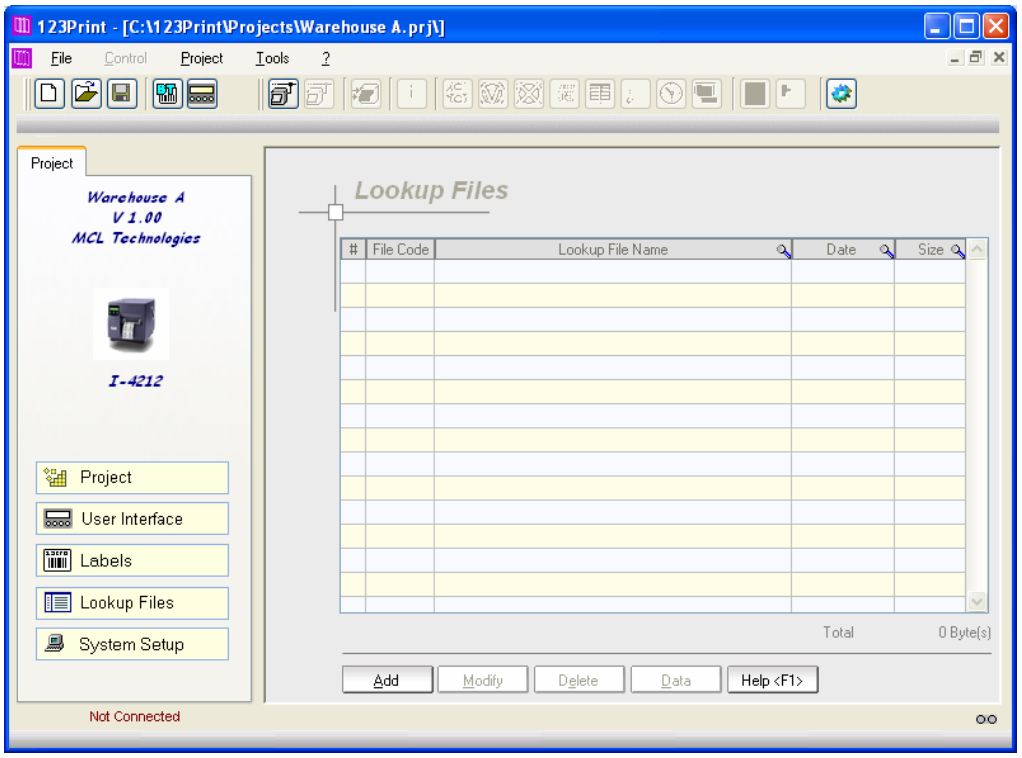
Lookup files

Click the **Lookup Files** button 

on the left-hand side of the main 123 Print window or on the menu bar:

1 Click **Project**
2 Click **Lookup Files**

The Lookup Files window is displayed as shown here



Lookup files

Initially the only Lookup File option available is **Add** Lookup File. However, once a Lookup File has been added, other file options become available.

Add Lookup File

You may add a Lookup File to your 123 Print project. On the Main Lookup Files window:

1 Click on the Add 

button
2 Add the Lookup File. See Sections 3.4.1 - 3.4.3 for details
3 Click **OK**

Modify Lookup Properties

You may modify the Lookup File Properties at any time, on the main Lookup Files window:

1 Click on the Modify 

button
2 **Modify** the **properties** as appropriate
3 Click **OK**

Lookup File Data

To review and edit the data in the Lookup file at any time, on the main Lookup Files window:

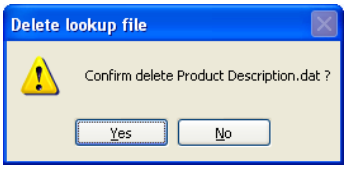
1 Click on the Data  button
2 Edit the data. See Section 3.4.4 – Edit Lookup File Data for details

Delete Lookup File

To delete a Lookup File from your project,

1 Select the file you want to delete
2 Click on the Delete  button

You are prompted to confirm the request to delete a Lookup File.



3 Click **Yes** to proceed with the deletion

The Lookup file is deleted from your project without any further warning.

If you delete  a lookup file from your project, please note that the lookup file and all of its contents are **fully and permanently** removed from your project. They cannot be recovered, even if you do not save the project.

It is therefore highly recommended that you always save a backup of the lookup file in a safe folder.

3.4.1. Add Lookup File

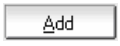
Add Lookup file

When adding a Lookup File, you can either create a lookup file from scratch or import data from another data source to create the lookup file. The file you create is of type *.dat.

If you used the default paths when installing 123 Print, your lookup files are saved in:

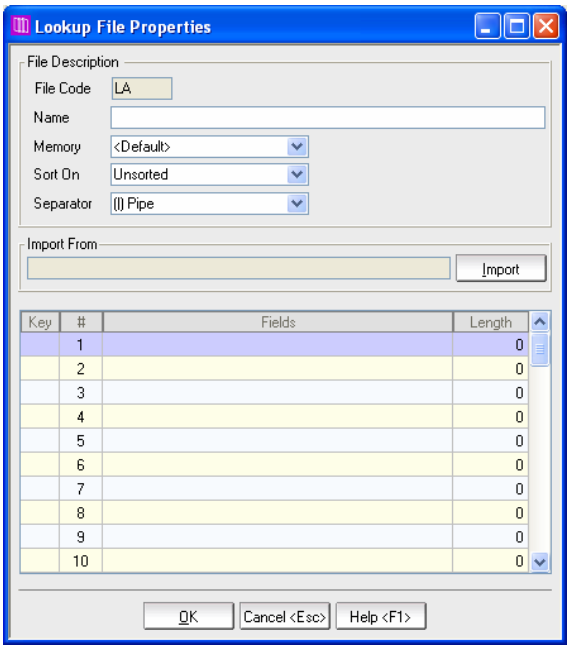
C:\123Print\Projects\<your project>.prj\lookup

On the Lookup Files window:

1 Click the **Add** 

button

The Lookup File Properties screen is displayed as shown here

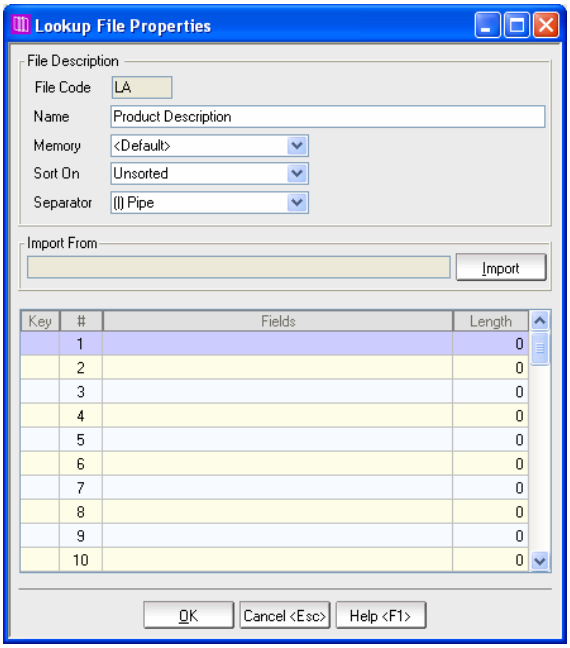


A file code is automatically assigned to your lookup file. Use this code in your 123 Project when referring to this lookup file.

The file codes include 99 predefined two character codes; the first is <LA>; the last is <OV>. 123 Print automatically assigns the next available reference code when you add a new lookup file to your project.

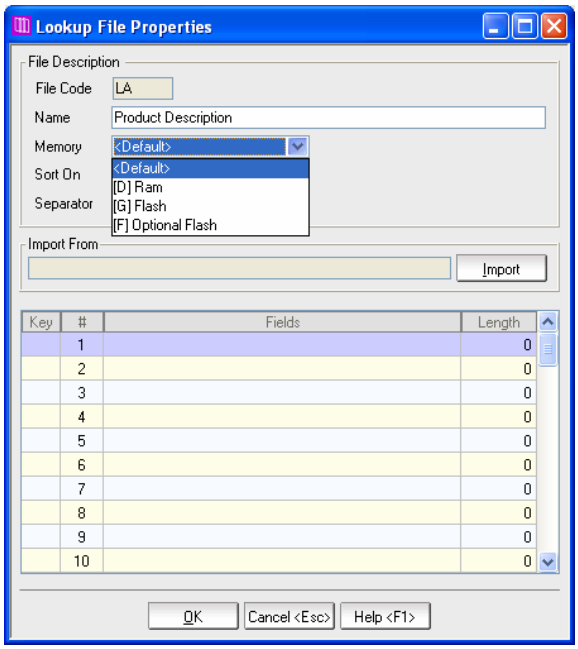
The following discusses the rest of the lookup file properties.

2 Give this lookup file a **name**, for example, Product Description



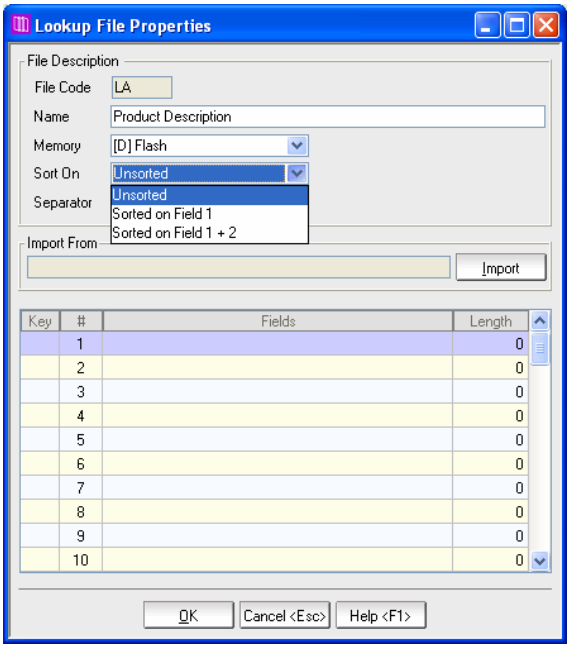
The next lookup file property is the Memory property. The lookup file may be saved in flash, RAM, or optional flash memory on your Datamax printer when you download your 123 Print project and lookup files into your Datamax printer.

If you select <Default>, the lookup file is stored wherever the MCL-Client is stored. This is typically in Flash memory.



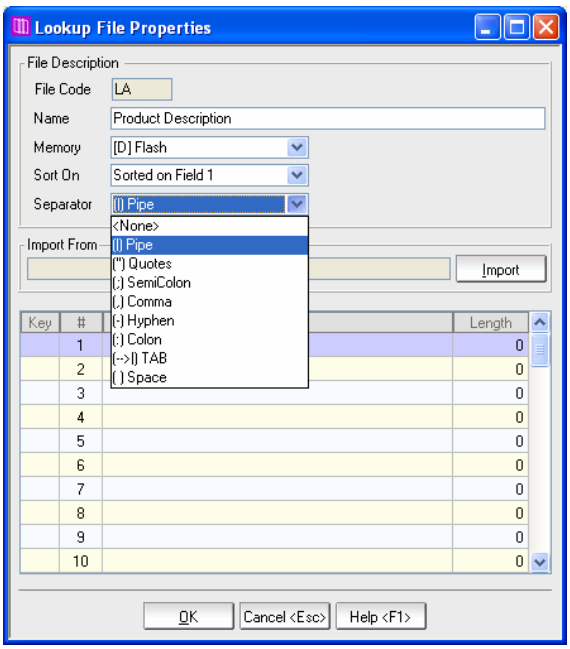
3 Indicate **where** you want this file to be **saved** on the printer

As shown below, you can leave the data in the lookup file unsorted, or you can sort it using the first field or the first and second fields of the file records. The lookup file will be sorted and saved according to this sort selection.



4 Select the desired **sort field(s)**, if any.

The next file property is the Separator property. 123 Print provides a variety of separators that can be used as field delimiters in the lookup file you are creating.

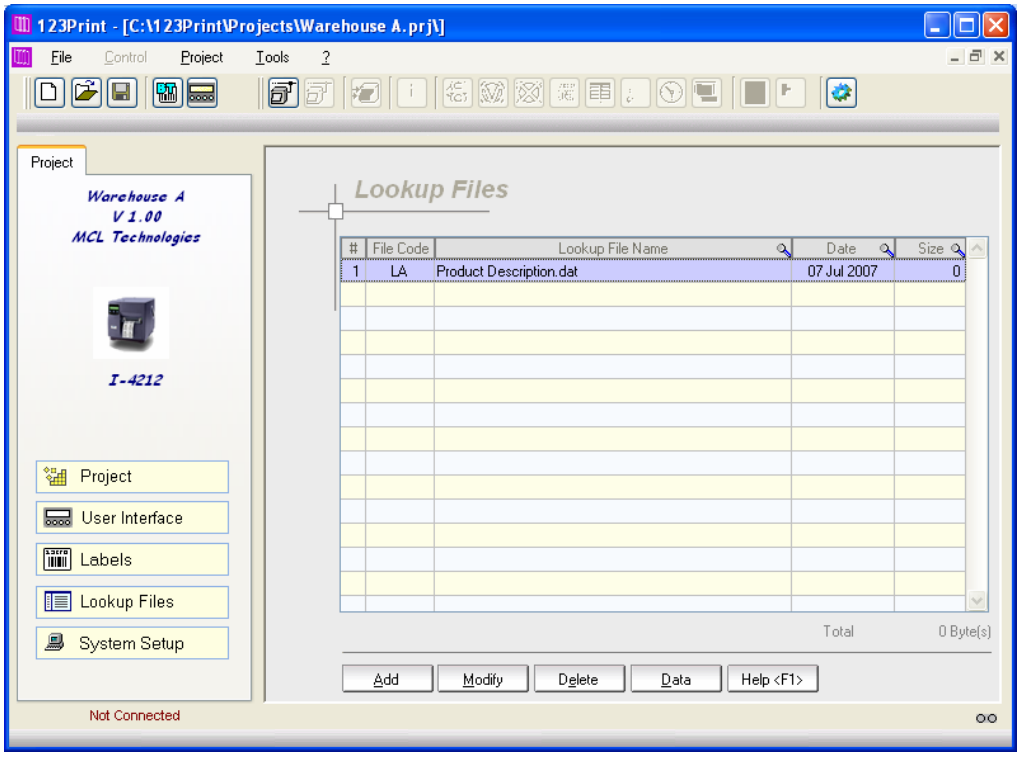


5 Select the desired **field separator**, if any.

If you want to create a lookup file from scratch, you have now entered all the properties necessary to create the file.

6 Click **OK**

The lookup file is created as shown below



Add Lookup File from Scratch

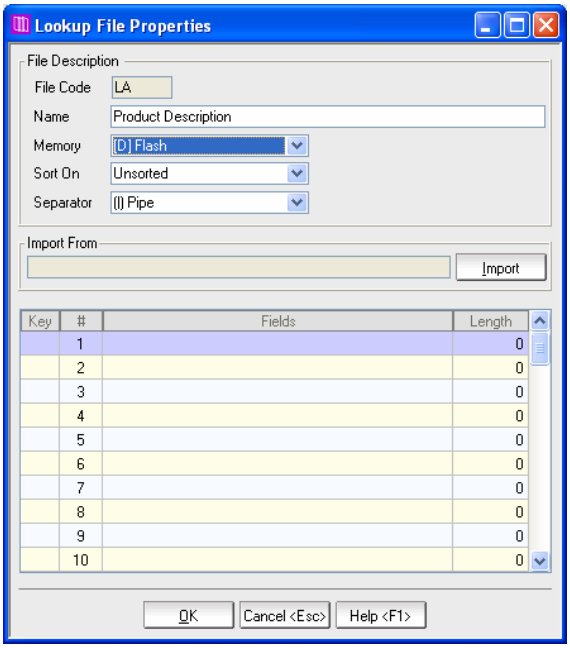
To see how to put data in the Lookup File you have created, please see Section 3.4.3 – Add Lookup File from Scratch

Add Lookup File from Import

To create your lookup file from an existing data source,

1 Complete the Lookup File Properties as described above.

2 Click on the **Import** button in the Lookup File Properties



To see how to create your Lookup File with data from an existing data source, please see Section 3.4.2 – Add Lookup File from Import File

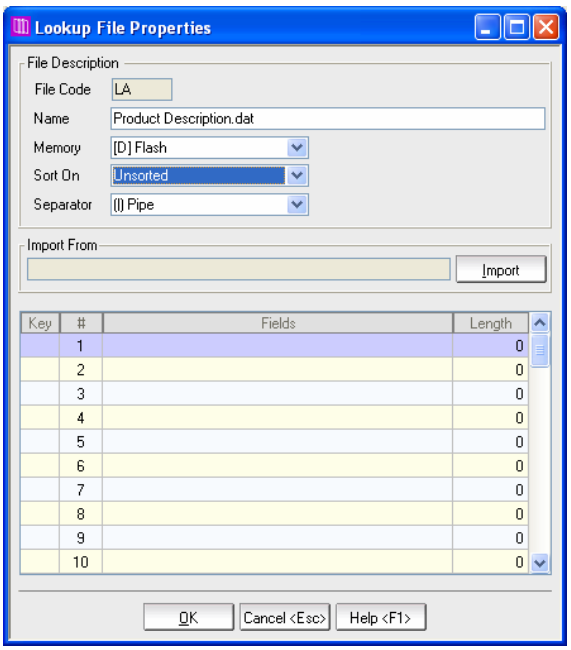
3.4.2. Add Lookup File from Import File

Add Lookup File from import file

In 123 Print, you can create a Lookup File from an existing data source. Several file types are valid for import:

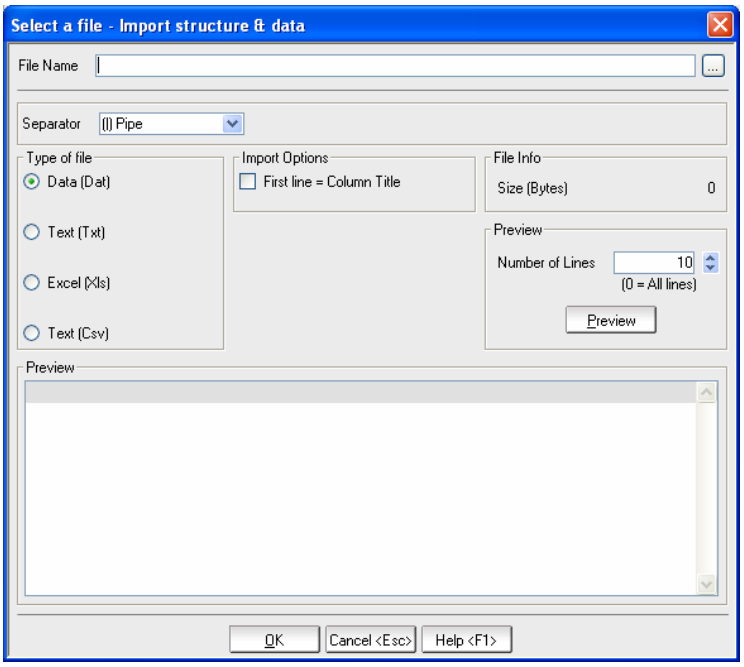
- *.dat, *.txt, *.xls, *.cvs

First, complete the Lookup File Properties as described in Section 3.4 – Add Lookup File.



1 Click on the Import  button

The Select a file – Import structure & data window is displayed as shown here

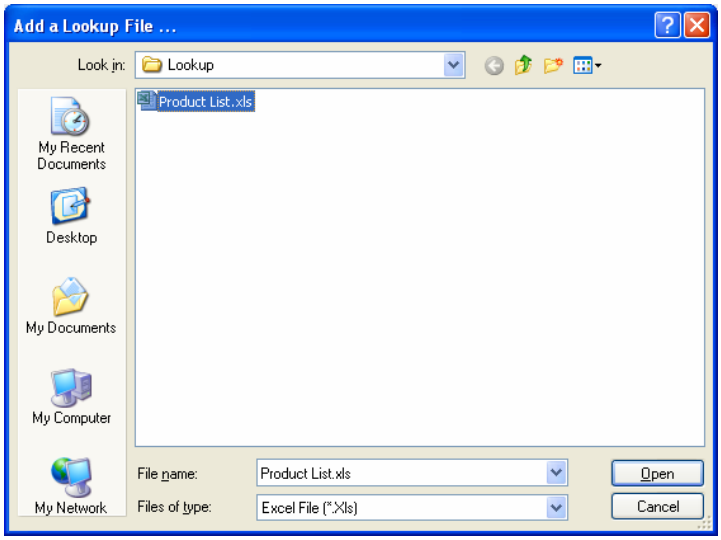


To select the file to be imported,

2 Enter a **path** and **filename**, or

3 Click on the **browse** icon

If you click browse, an **Add a Lookup File** browse window is displayed as shown here

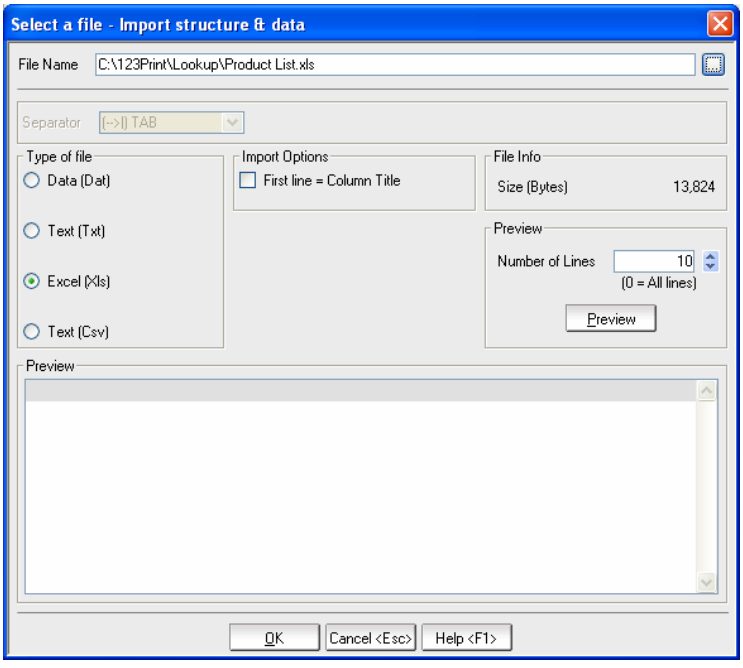


4 Select the appropriate **file type** of the file to be imported

5 **Navigate** to the file you want to use

6 Click **Open**

The file you select appears in the Select a file – Import structure & data screen as shown here



If you are importing a *.dat, *.txt., or *.cvs file:

7 Indicate which separator (if any) is being used to delimit the fields in the Lookup File you are importing.

This step is not required for an excel spreadsheet import. 123 Print knows how the fields of a *.xls file are delimited.

If you are importing a file, such as an excel file, in which the first row of your spreadsheet contains column headers that you want to use as field descriptors in your lookup file:

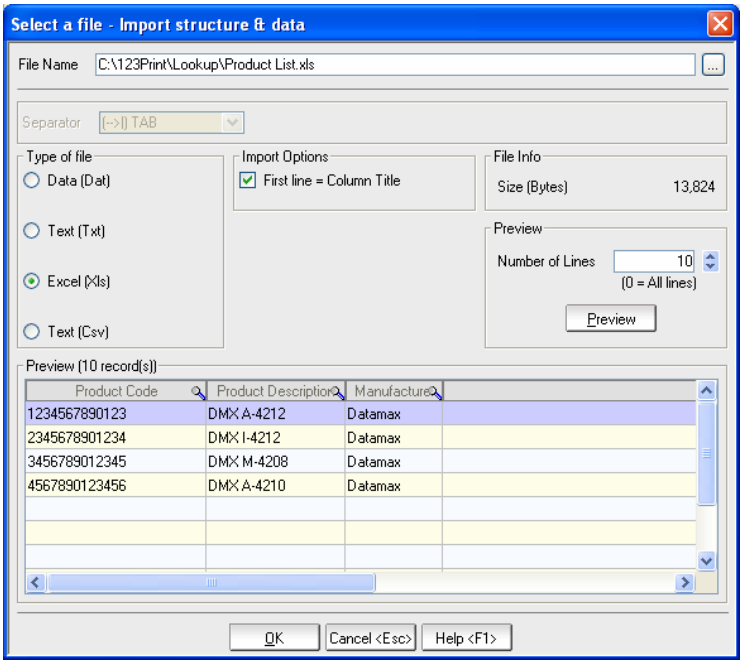
8 Check the **checkbox** beside **First line = Column Title**

To preview the structure and data of the lookup file you are creating from the file being imported:

9 Indicate how many lines you want to view by **editing** the **value** beside **Number of Lines**, or use the arrows to increment or decrement the value in the field

10 Click on the **Preview** button

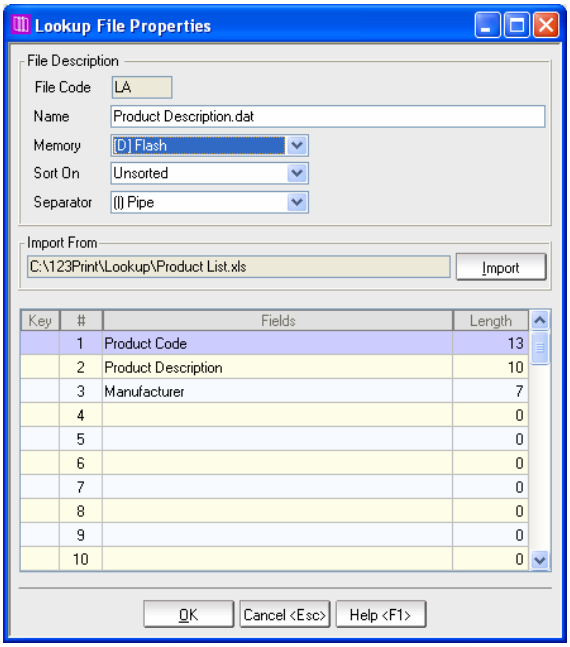
The first few lines of the imported file are displayed as shown below



Number of Lines is useful if you are importing from a large file and do not need to view all the data to be satisfied that the import fields and data are being properly processed in creating the lookup file.

11 Click **OK**

As shown below, the Lookup File Properties window is displayed again with the fields and field lengths filled in to reflect the data found in the imported file. The fields of your lookup file are from the column headers of the excel spreadsheet. The field lengths are calculated using the data found in the related spreadsheet columns by using the number of characters from the largest data entry found in said column.



The lookup will be created using the properties given here, using these field names, field lengths, field separators, etc.

Any of the properties such as the field names or field length may be edited at this time.

Edit the Product Description field length to 25, for example, and the Manufacturer field length to 20

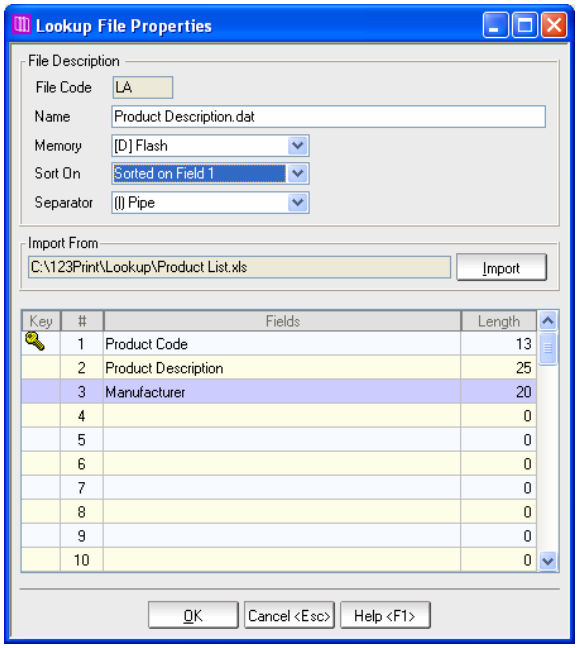
12 **Double Click** on the **field** to be edited

13 Enter the **revised value** for the field

You may also decide to sort the data at this time, if you did not do so earlier, in the Sort On entry field

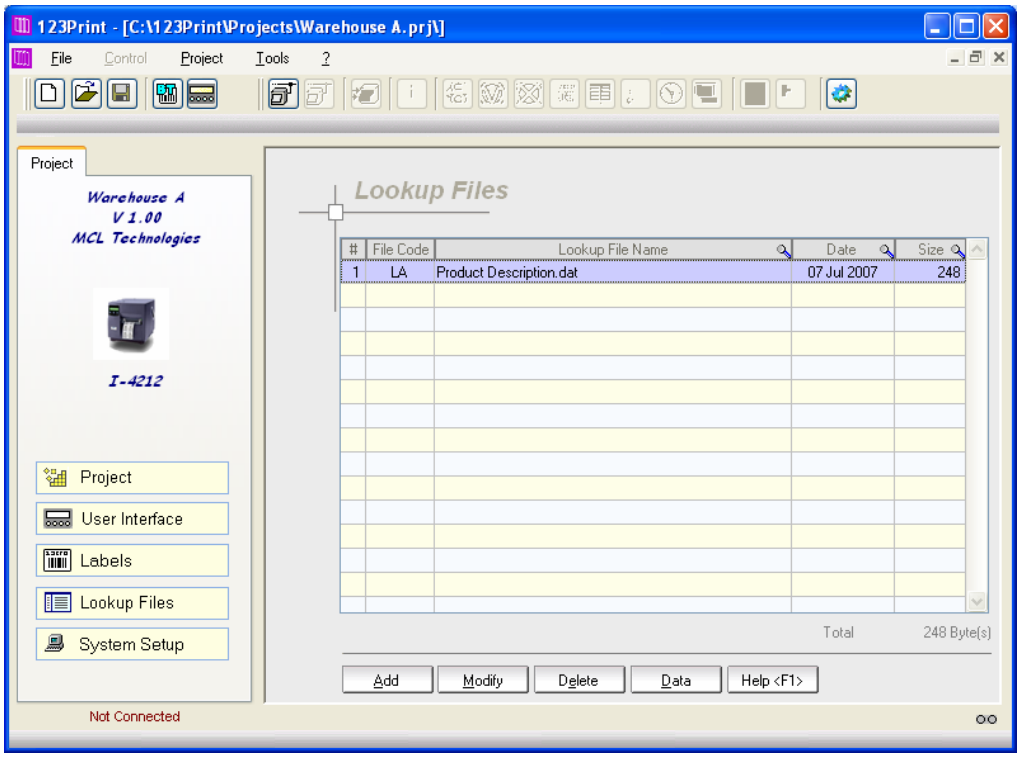
14 Select the desired option

A key icon is displayed beside the selected sort field, as shown here



15 Click **OK**

The Lookup Files window is displayed with an entry for the Product Description lookup file being created.

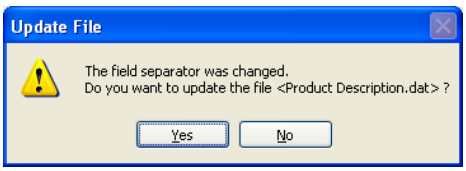


You have now created a Lookup File from a data source. The resulting Product Description.dat file for this example looks like this:

```
1234567890123|DMX A-4212                    |Datamax
2345678901234|DMX I-4212                    |Datamax
3456789012345|DMX M-4208                    |Datamax
4567890123456|DMX A-4210                    |Datamax
```

If you decide you would like a different separator, select the desired separator in the Lookup Files Properties window and click OK. This example changes the separator to a semi-colon.

You are prompted to confirm



16 Click **Yes**

The revised Product Description.dat file now looks like the following

```
1234567890123;DMX A-4212                    ;Datamax
2345678901234;DMX I-4212                    ;Datamax
3456789012345;DMX M-4208                    ;Datamax
4567890123456;DMX A-4210                    ;Datamax
```

If necessary, you can modify the data in the Lookup File. (Please see Section 3.4.4 – Edit Lookup File Data

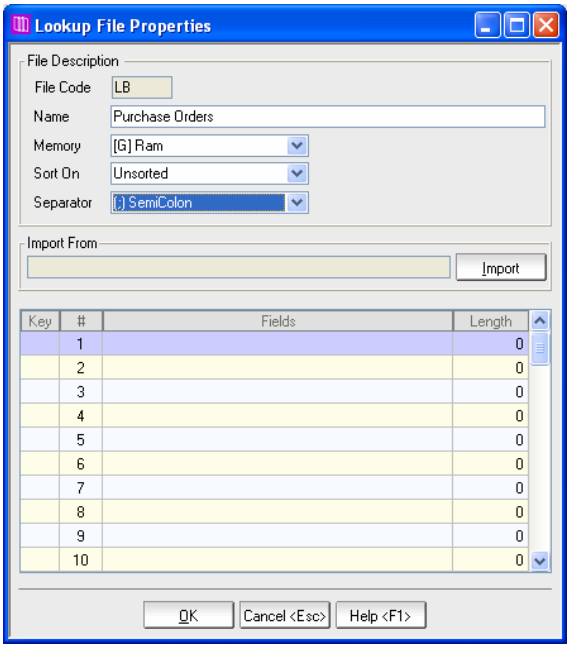
3.4.3. Add Lookup File from Scratch

Add Lookup File from scratch

In 123 Print, you can create a Lookup File from Scratch.

First, complete the Lookup File Properties as described in Section 3.4 – Add Lookup File.

123 Print assigns the next available file code <LB> to this new file.

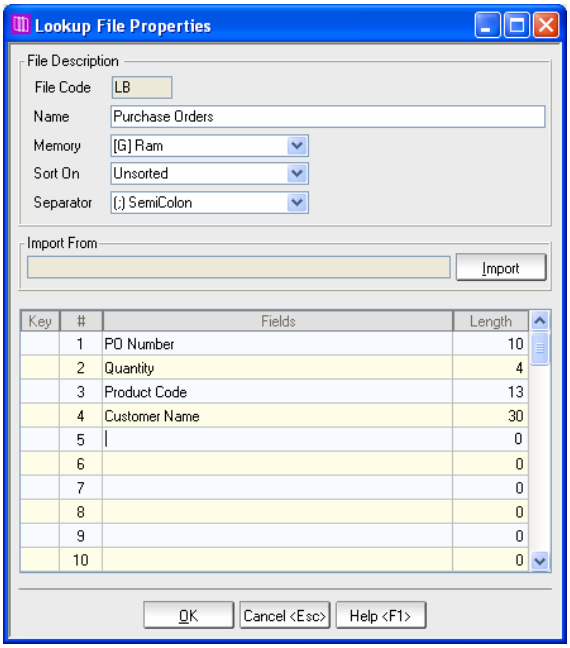


Now create the structure for your lookup file

1 Enter **field names** for the data in the Lookup File you are creating

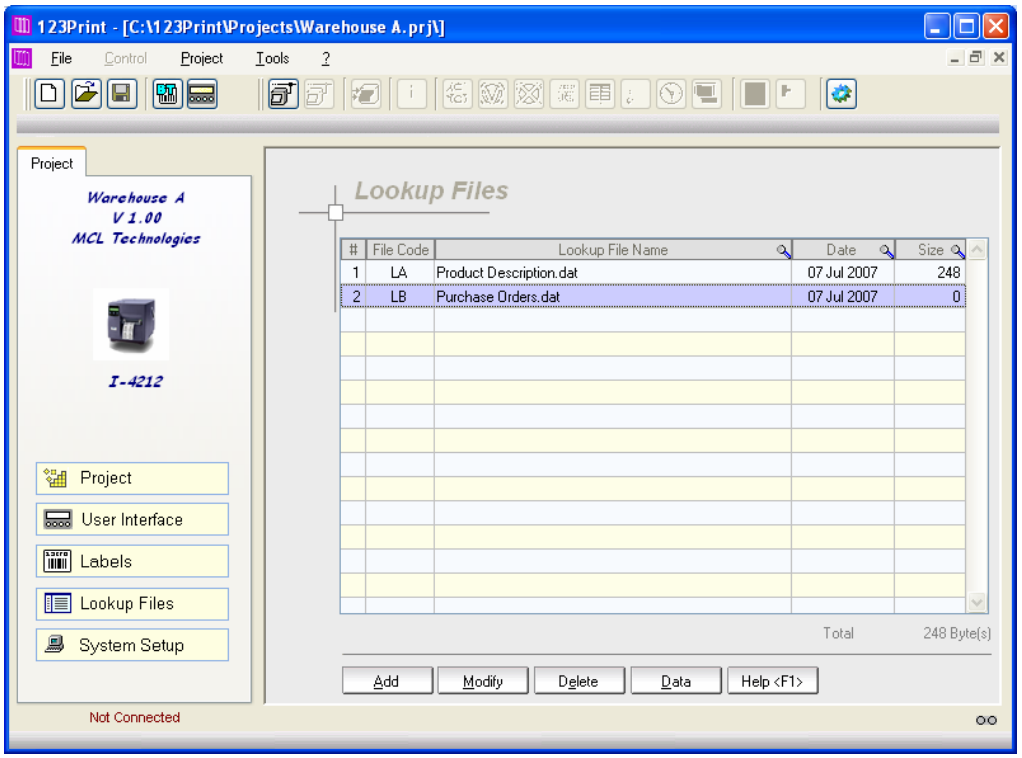
2 Enter the **field lengths** for the fields you created in step 1

This example shows the possible structure for a Purchase Orders Lookup File.



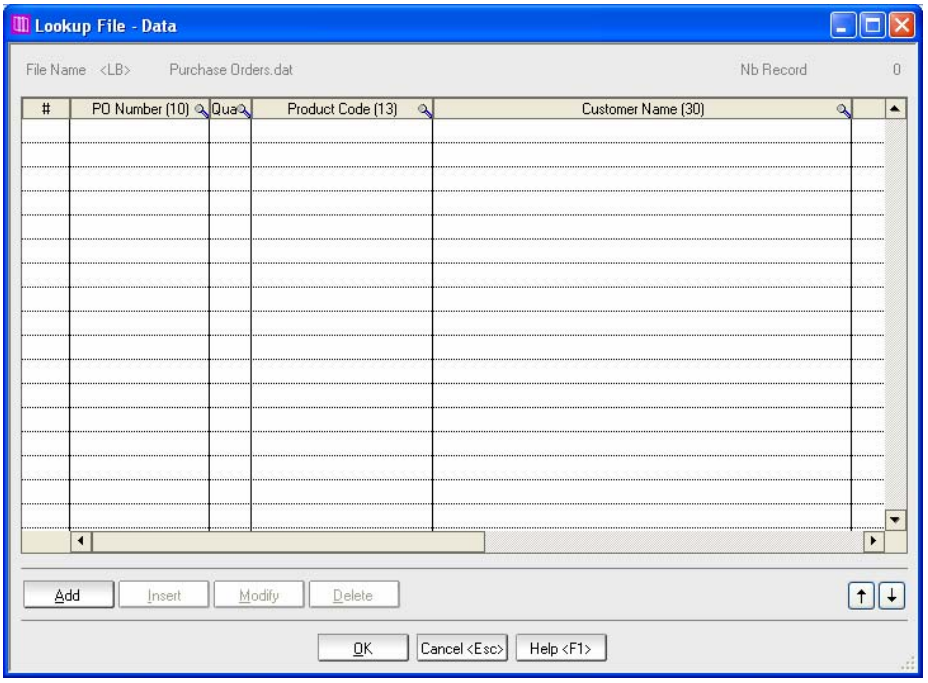
3 Click **OK**

The main Lookup Files window is displayed as shown here



Next, add your data to the Lookup File. In the Lookup Files window,

4 Click the Data  button

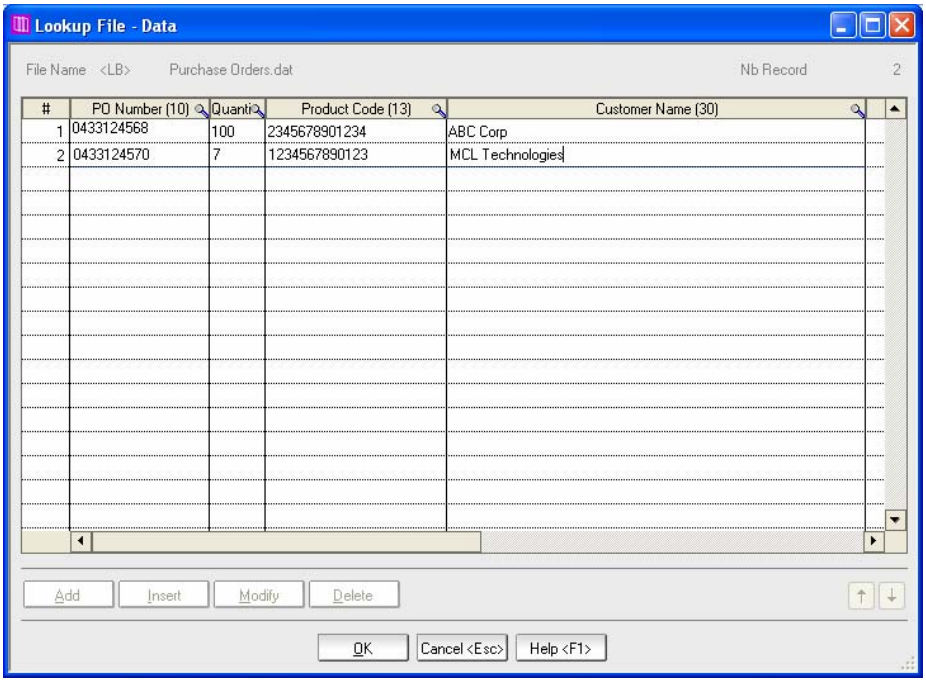


5 Double click on the first field in the first row to edit it with the desired data

6 Press <TAB> or <ENTER> to move to the next field for editing.

When all fields of a record have been filled in, <TAB> or <ENTER> automatically advances you to the beginning of the next record.

Continue adding records until your Lookup File is completed

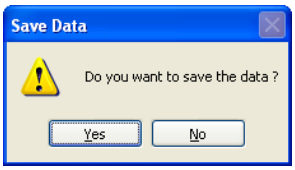


Save Lookup File

To save the Lookup File,

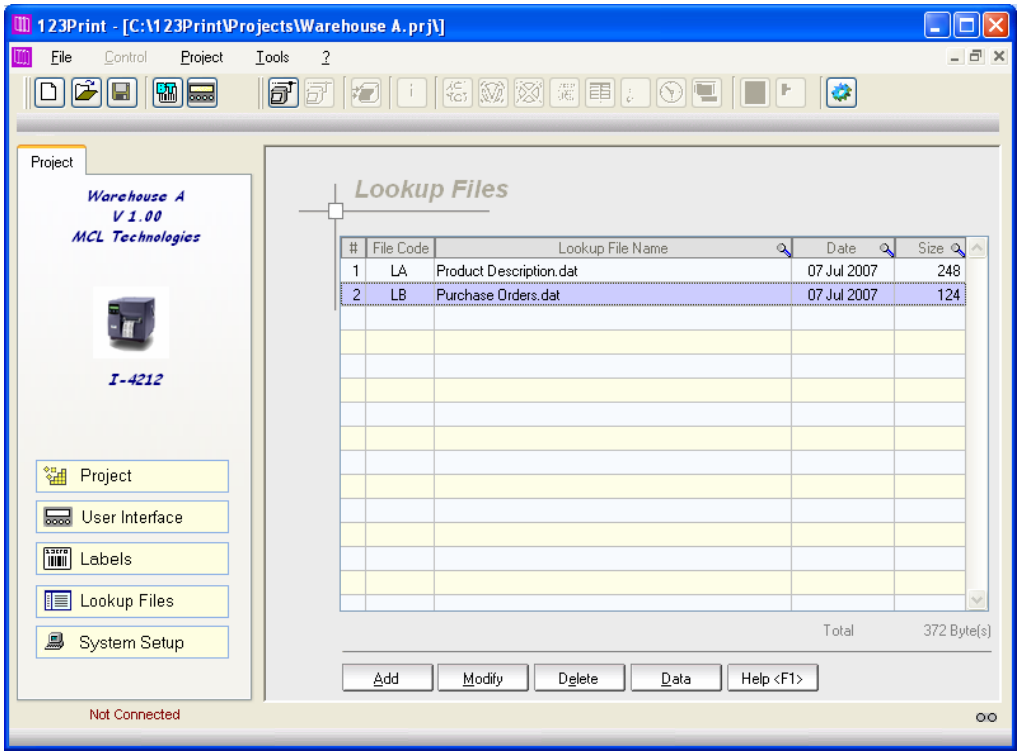
7 Click **OK**

You are prompted to confirm that you want to save the file



8 Click **Yes**

The Lookup File is closed with an updated file date and file size. The Lookup Files window is displayed as shown below



3.4.4. Edit Lookup File Data

General introduction

Once a Lookup file is created from scratch or through importation of an existing data source, you can edit your Lookup File data. You may perform the following on your data records:

- Add
- Insert
- Modify
- Delete

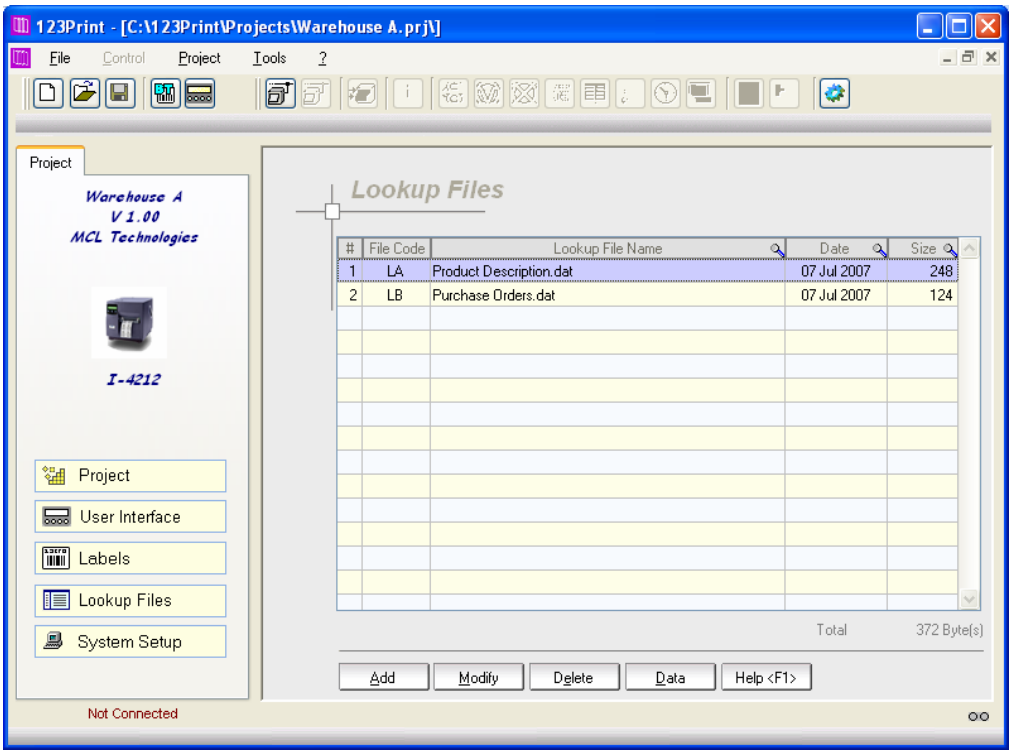
Edit Data

The Lookup File data may be edited at any time—when the file is first being created or at a later time whenever changes are required.

In the Lookup Files window,

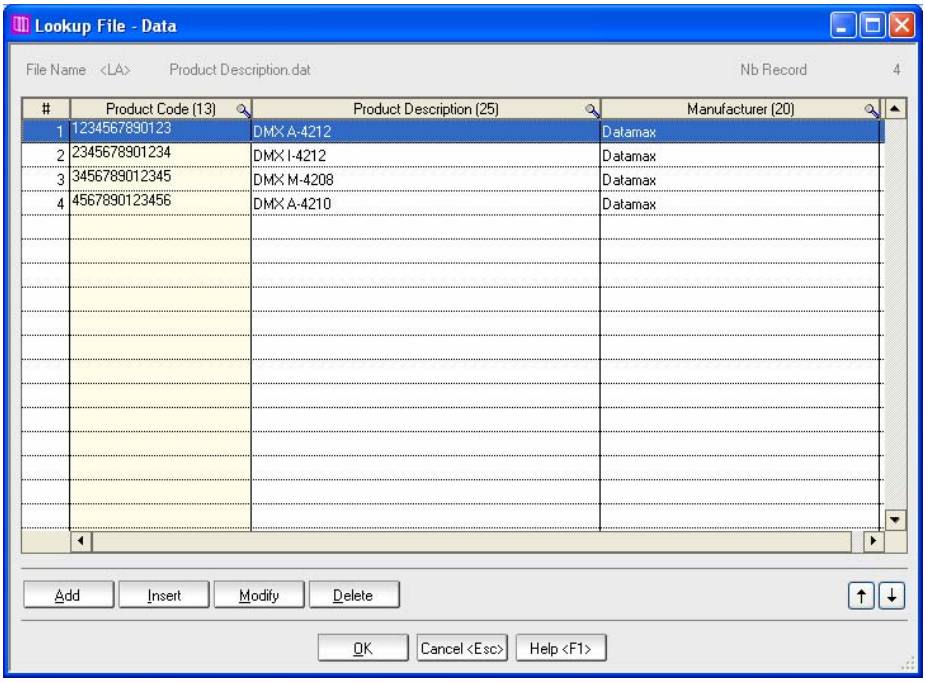
1 Select the Lookup File to be edited

This example edits the Product Description file created in Section 3.4.2 – Add Lookup file from Import File



2 Click the Data  button

The Lookup File – Data window is displayed as shown below



Display / Hide columns

You can hide any of the columns you do not want to see:

3 Right click any of the **column headers**

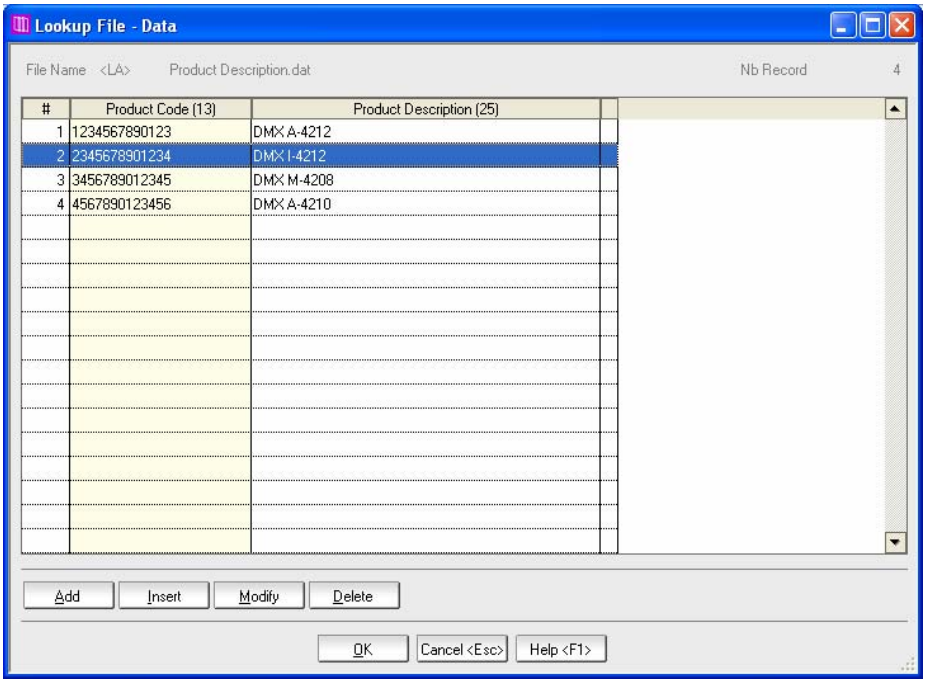
A list of the columns is shown. A check mark beside a column indicates it is being displayed. No check mark indicates the column is hidden. To hide a column:

4 **Select** the column name of column(s) you want to hide

This is a toggle function. At any time, you can re-enable the display of the column:

5 **Select** the column name beside the column name(s) you want to display

Here is the result if you hide the Manufacturer column.



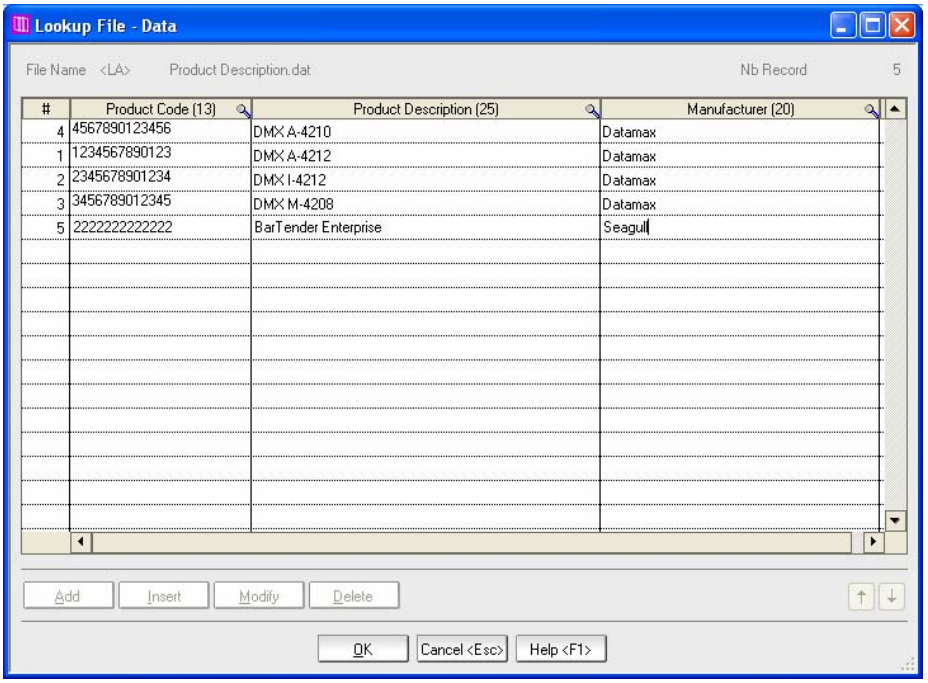
Add record

To add a record:

1 Click the Add [Add] button

A blank record is added to the file.

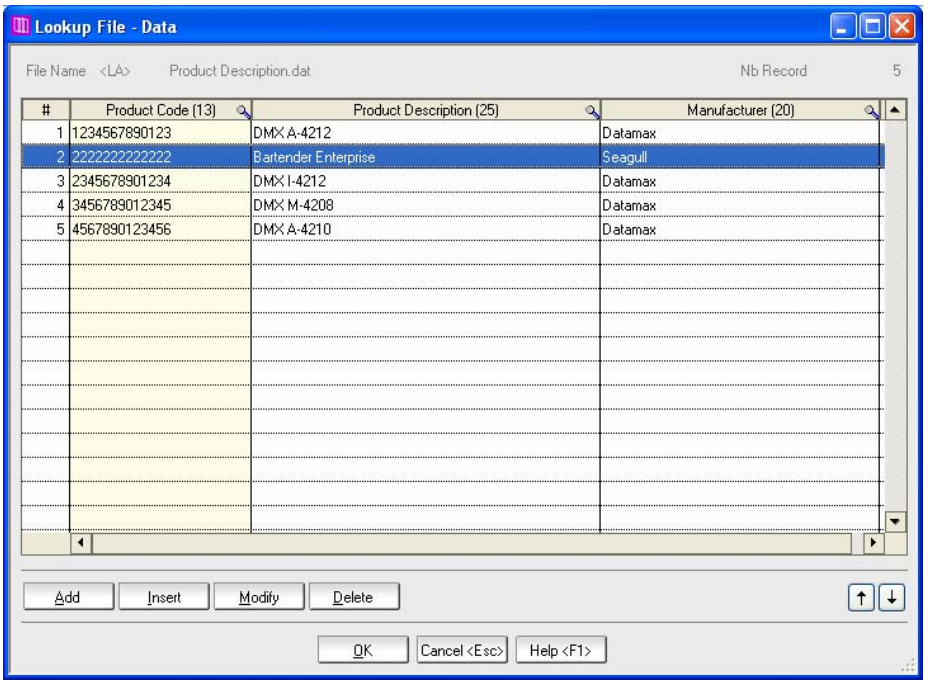
2 **Enter** the desired **data** for this record, for example the product information for Seagull's BarTender software



When all the data for the new record has been entered,

3 Press <ENTER>

If your Lookup File is being sorted on Field 1, the record you added will automatically be sorted into the correct position in your file, as show here.



Insert a record

To insert a record,

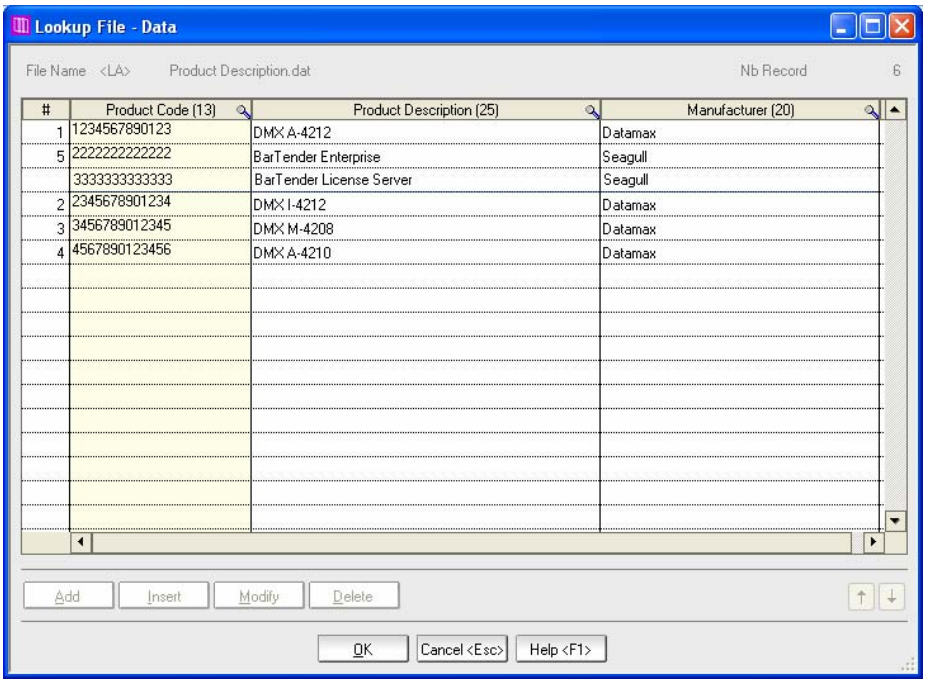
1 Click on the record **below** the desired insertion point

2 Click the Insert [Insert] button

A record is added above the selected record.

3 Enter the desired data for this record, for example the product information for Seagull's BarTender License Server

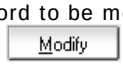
Insertion at a desired point is only useful if you are inserting records in an unsorted file. If the file is sorted, the insertion point is not relevant since 123 Print automatically re-sorts the records for you. If you want to control where the record goes, change the Lookup File Properties to Unsorted.



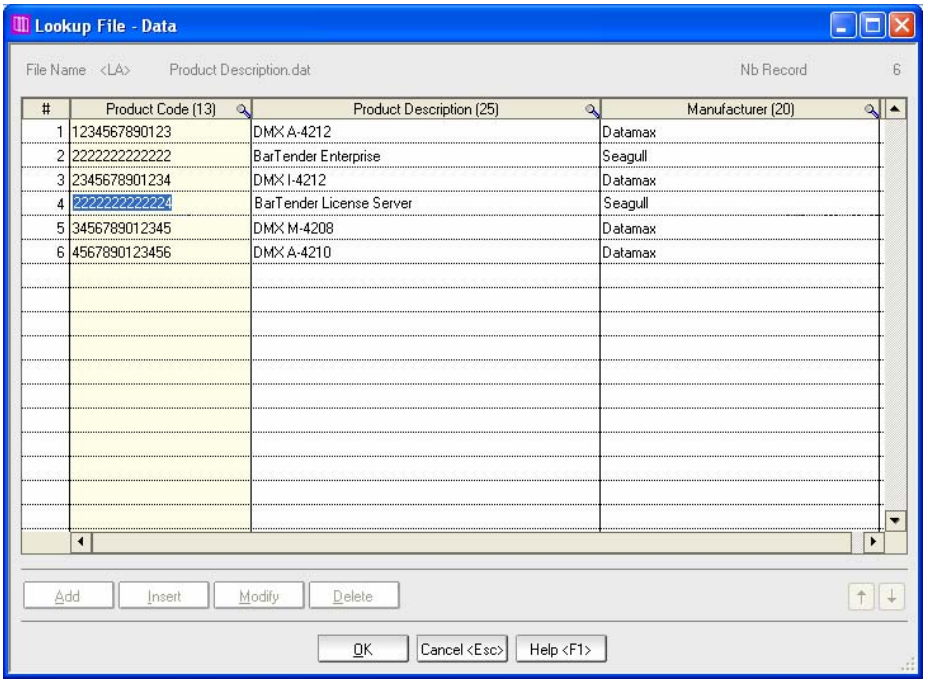
Modify a record

To modify a record,

1 Click on the record to be modified

2 Click the Modify  button

3 Edit the data as desired. In this example, the product code for the inserted record is modified



Change record order

The arrows in the lower right-hand corner of the Lookup File – Data window allow you to change the order of the records in the Lookup File. To move a record up or down:

1 Click on the record to be moved

2 Click the up or down  arrow repeatedly until the record is in the desired position

Change record order is only useful if you are ordering the records in an unsorted file. If the file is sorted, the order change is not relevant since 123 Print automatically re-sorts the records for you.

Delete record

To delete a record:

1 **Click** on the **record** to be deleted

2 Click the Delete  button

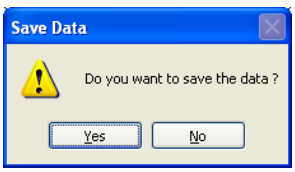
The record is deleted immediately without any further warning.

Save Lookup File

When you have made all the edits you want to your Lookup File data, save your changes

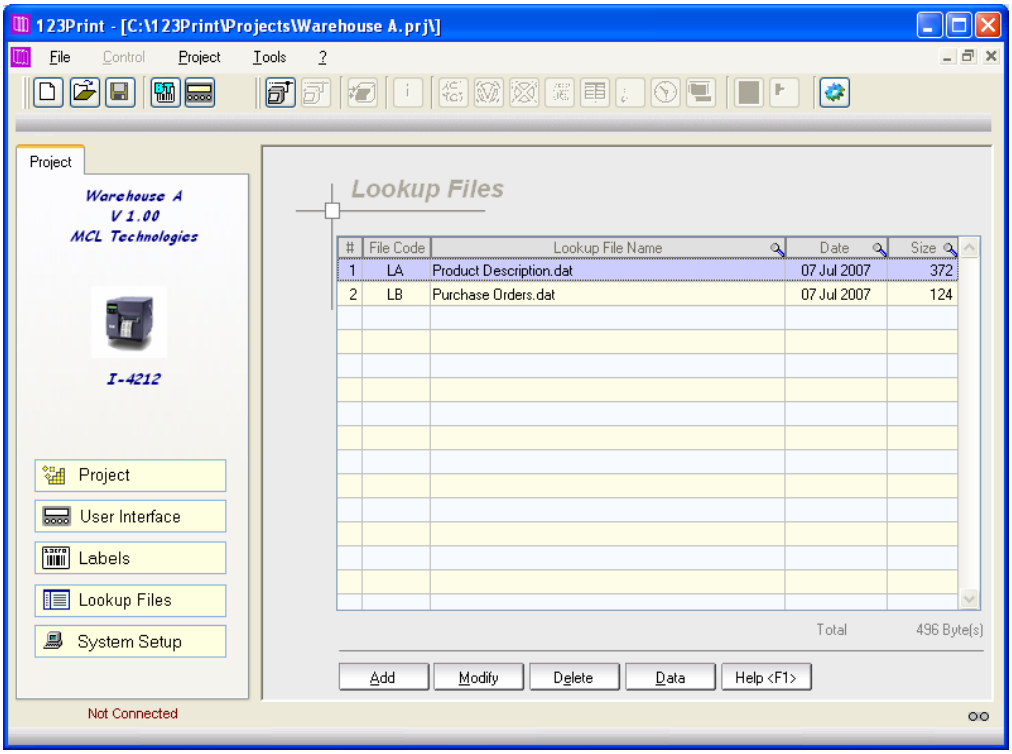
1 Click **OK**

You are prompted to confirm that you want to save the file



2 Click **Yes**

The Lookup File is closed. The Lookup Files window is displayed as shown below. Notice that the file information has been updated to show the date and size of the revised file.



3.5. System Setup

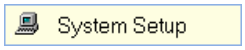
General introduction

This section describes the settings for your 123 Print project.

Different settings are possible according to your printer display type.

Setup

To enter System Setup, you must first have a project open. Then,

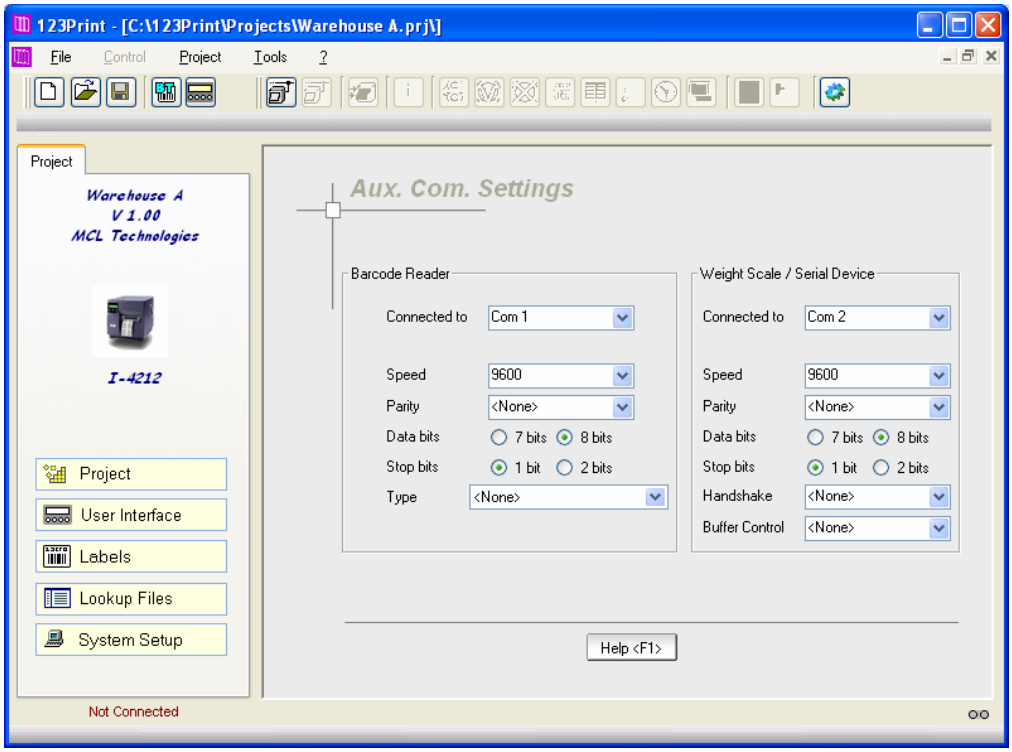
Click the **System Setup** button 

on the left-hand side of the main window or on the menu bar:

1 Click Project
2 Click **System Setup**

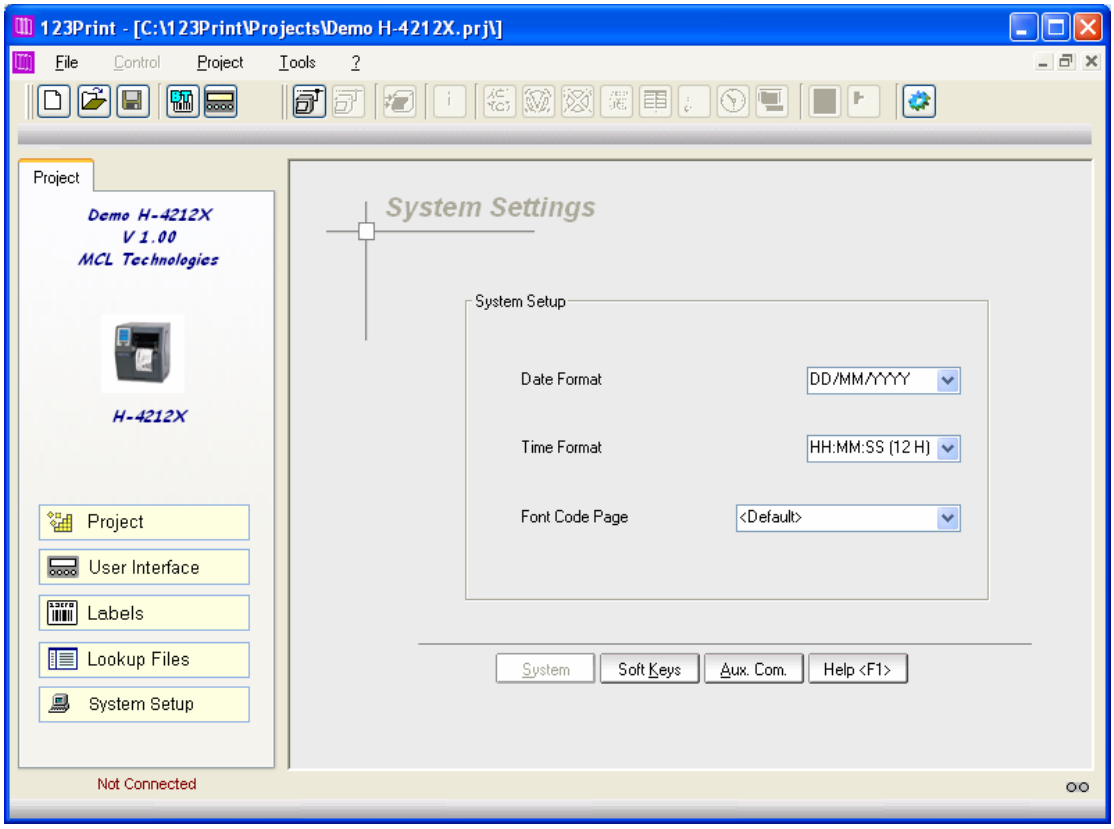
Text Display

When you select System Setup for a text display printer, the Aux Com Settings window is displayed as shown here. These are the only project related settings for a text display printer project. See Section 3.5.2 – Auxiliary Communications for Aux Com Settings setup.



Graphical Display

When you select System Setup for a graphical display printer, the System Settings window is displayed as shown here. Notice that there are also buttons for Soft Keys setup and Aux Com setup. See Section 3.5.1 - Soft Keys Setup and Section 3.5.2 - Auxiliary Communications.



3 Select the desired **Date Format** for your project
4 Select the desired **Time Format** for your project
5 Select the desired **Font Code Page** for your project

3.5.1. Soft Keys Setup – Graphical Display Only

General introduction

This section describes the Soft Key setup for your **graphical display** 123 Print projects.

As described in Section 3.2 – User Interface, a 123 Print graphical display printer project provides a **Footer** option to display the function of the Datamax printer keys.

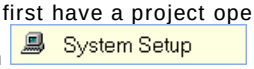
123 Print allows you to define the function of these keys on a project-by-project basis, thus making them Soft Keys.

This section describes how to:

- Define the function of the Datamax printer keys
- Setup what is displayed in the footer of your project screens

Soft Keys Setup

To enter Soft Keys setup, you must first have a project open. Then,

1 Click the **System Setup** button 

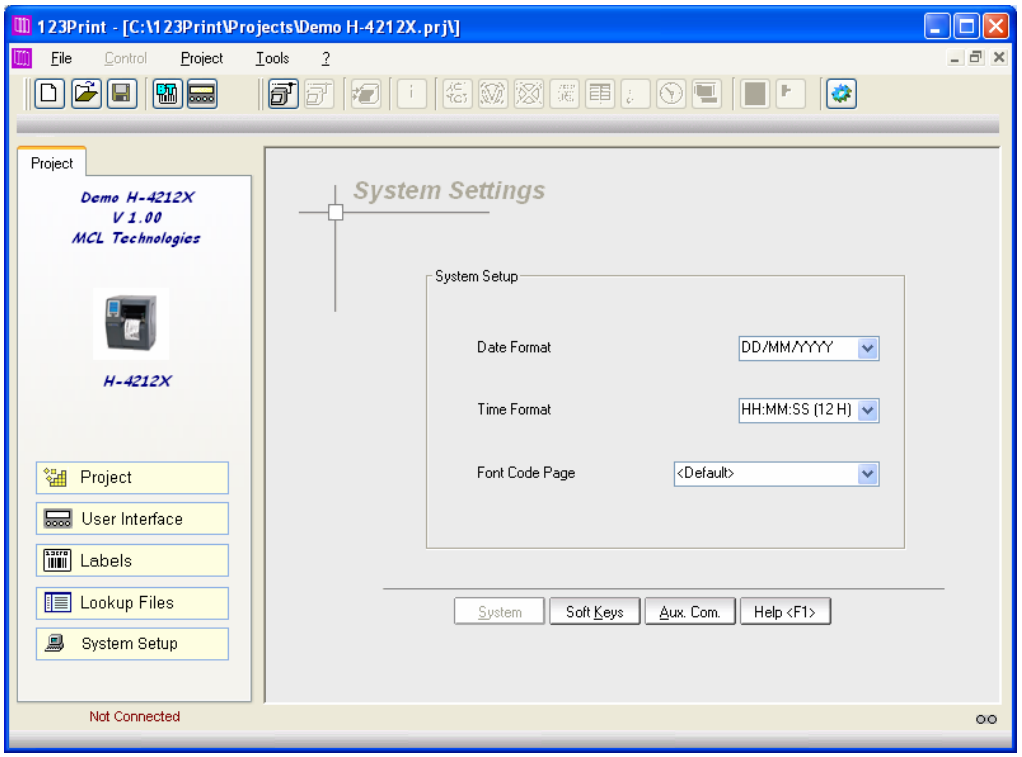
on the left-hand side of the main window

Alternatively, on the menu bar:

2 Click **Project**

3 Click **System Setup**

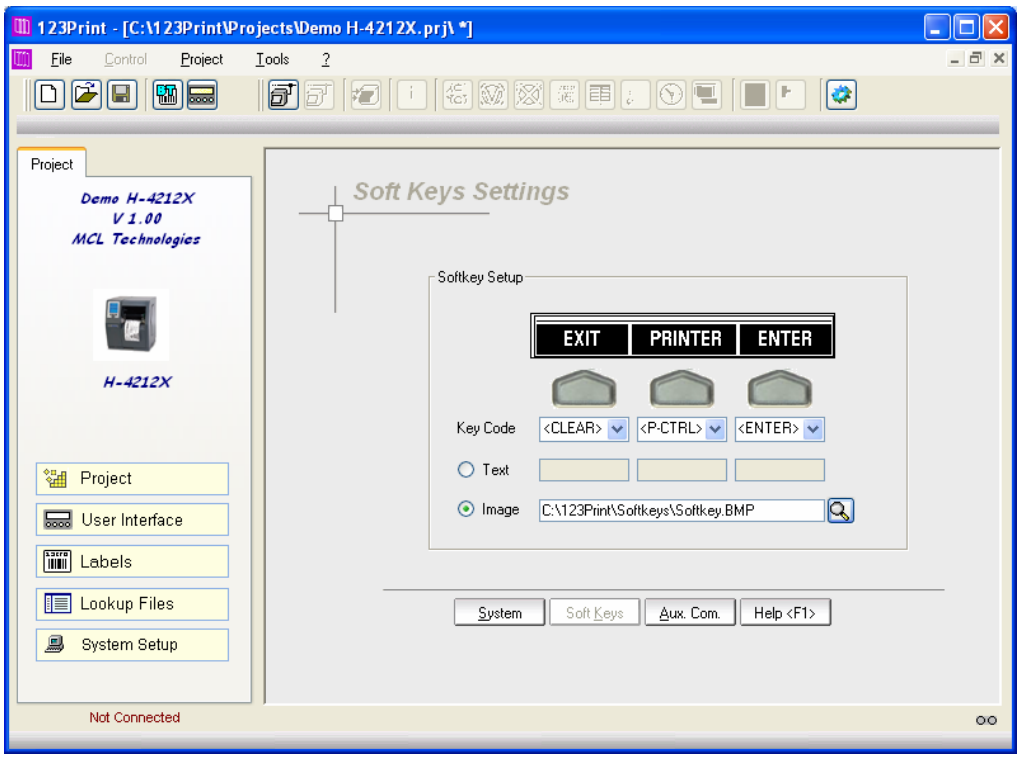
The System Setup screen is displayed as shown here:



4 Click the **Soft Keys** 

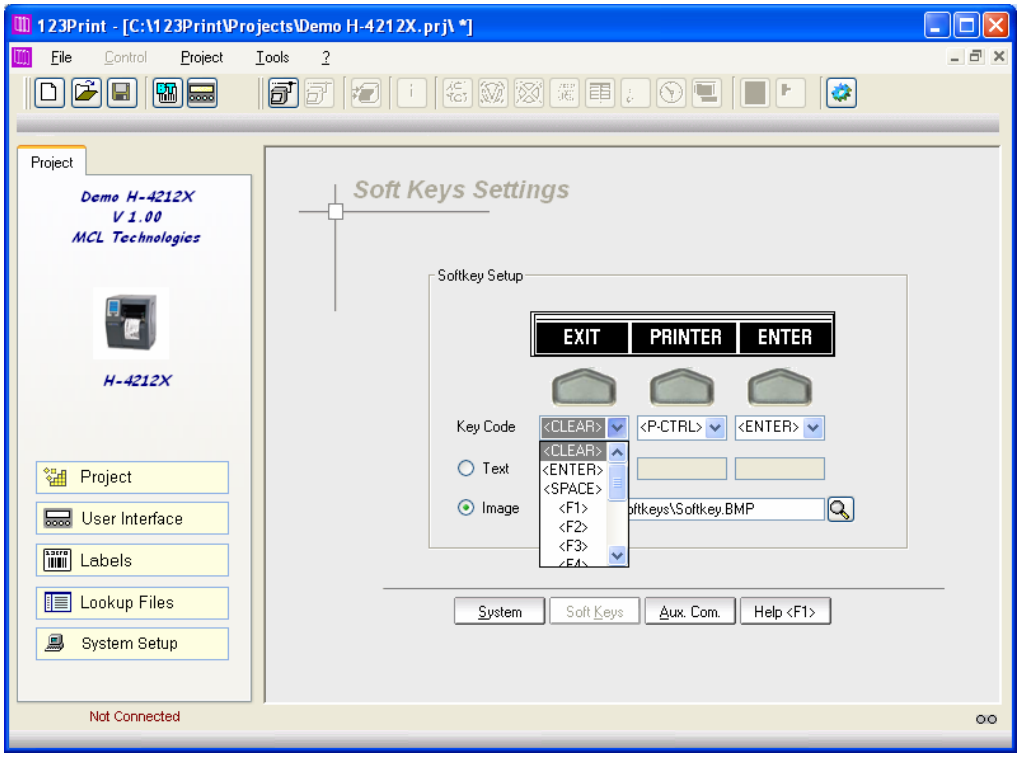
button

The Soft Keys screen is displayed as shown here:



The keys found on your Datamax printer are depicted with a Key Code box beneath each key.

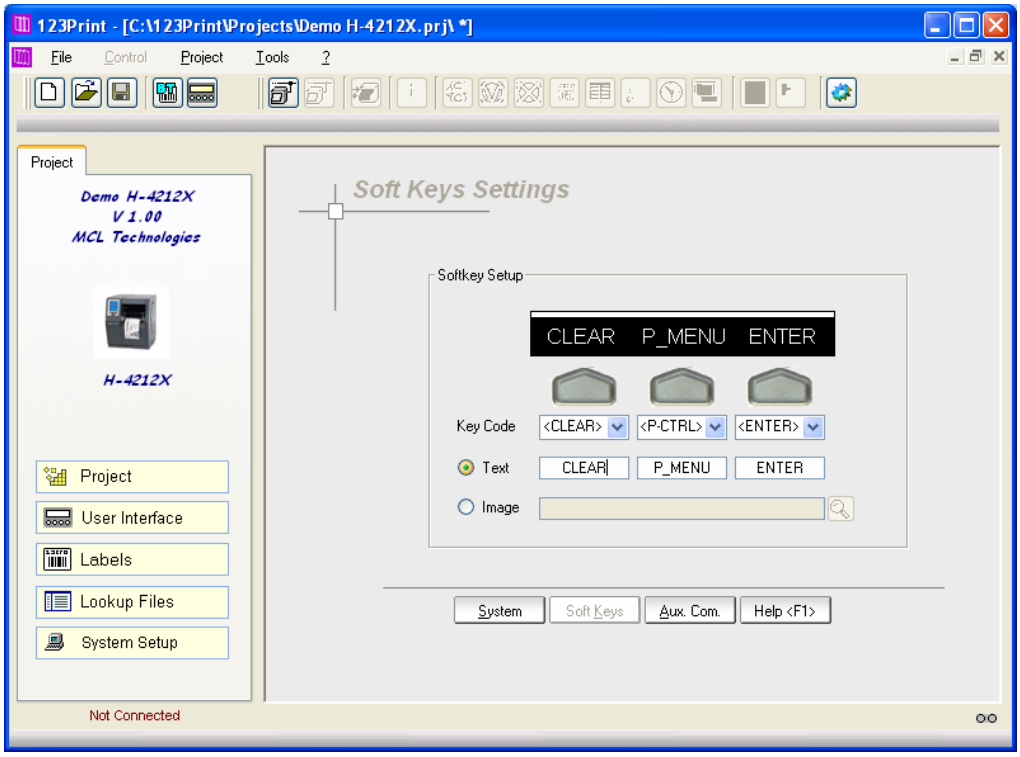
5 Select the desired function for each of the keys from the drop down list of options as shown here:



Next decide whether you want text or an image to be displayed in the footer to show the functions you have applied to the keys.

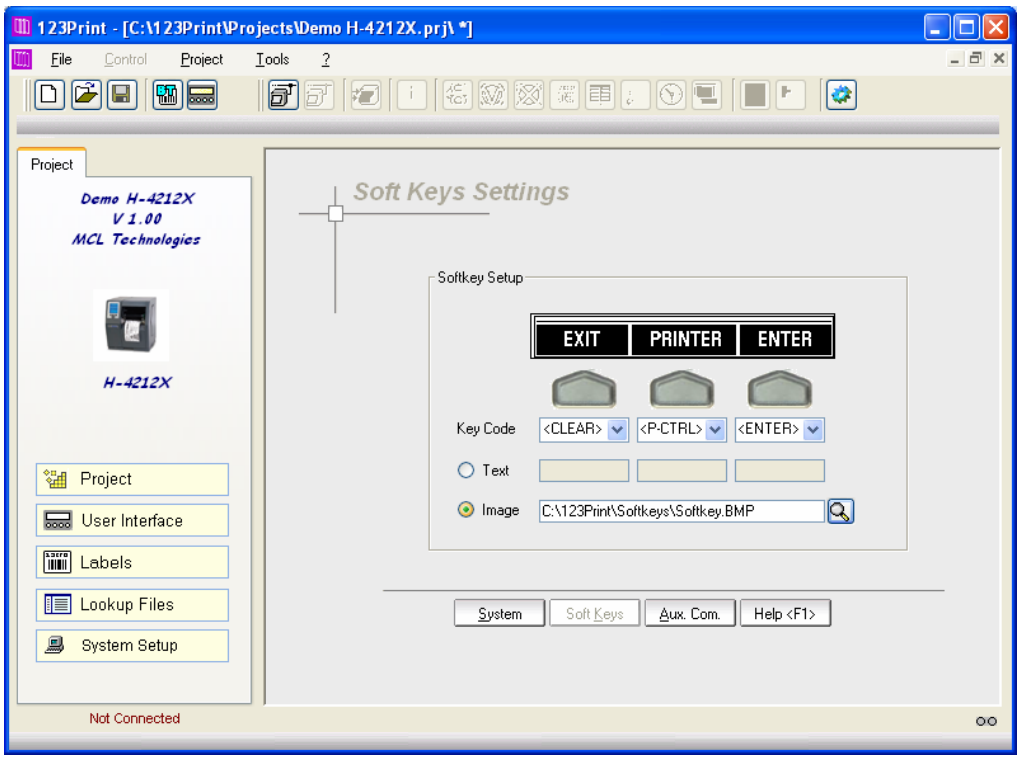
6 Select the Text or Image radio button

If you select Text, simply edit the text box provided for each key to reflect the given function of the key, as shown here:



Below shows what the Welcome screen footer looks like if the above text is entered in the Soft Key text edit boxes:

If you select Image, click the browse button to navigate to the desired image as shown here:



Graphical Display – Large Screen

The Soft Key footer image for a large screen graphical display should be a monochrome *.bmp image with the following specifications:

- Black and white
- 1 bit
- Uncompressed
- Max 240x320 px

Graphical Display – Small Screen

The Soft Key footer image for a small screen graphical display should be a monochrome *.bmp image with the following specifications:

- Black and white
- 1 bit
- Uncompressed
- Max 128x64 px

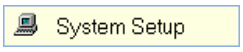
3.5.2. Auxiliary Communications

General introduction

This section describes the auxiliary communications settings in order for your 123 Print project to be able to communication with peripherals connected serially to your Datamax printer.

Setup

To enter auxiliary communications setup, you must first have a project open. Then,

Click the **System Setup** button 

on the left-hand side of the main window or on the menu bar:

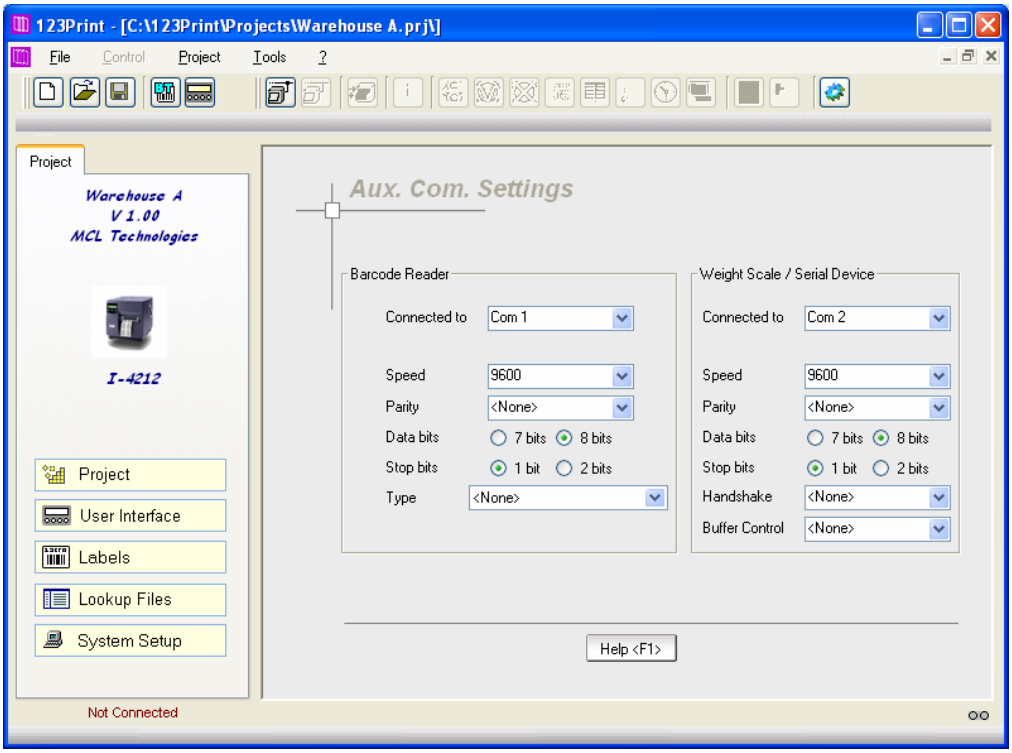
1 Click Project
2 Click **System Setup**

If using a graphical display printer, on the System Settings screen:

3 Click the Aux Com 

button

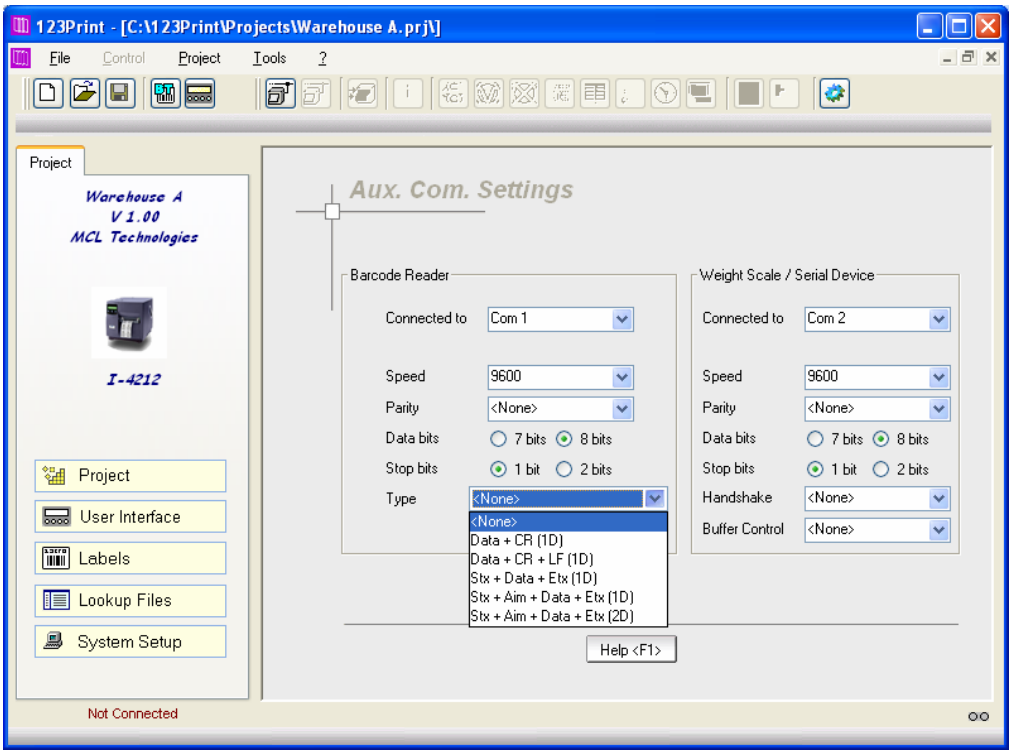
The Aux Com Settings window is displayed as shown here



Com 1 is the default port for barcode scanning.

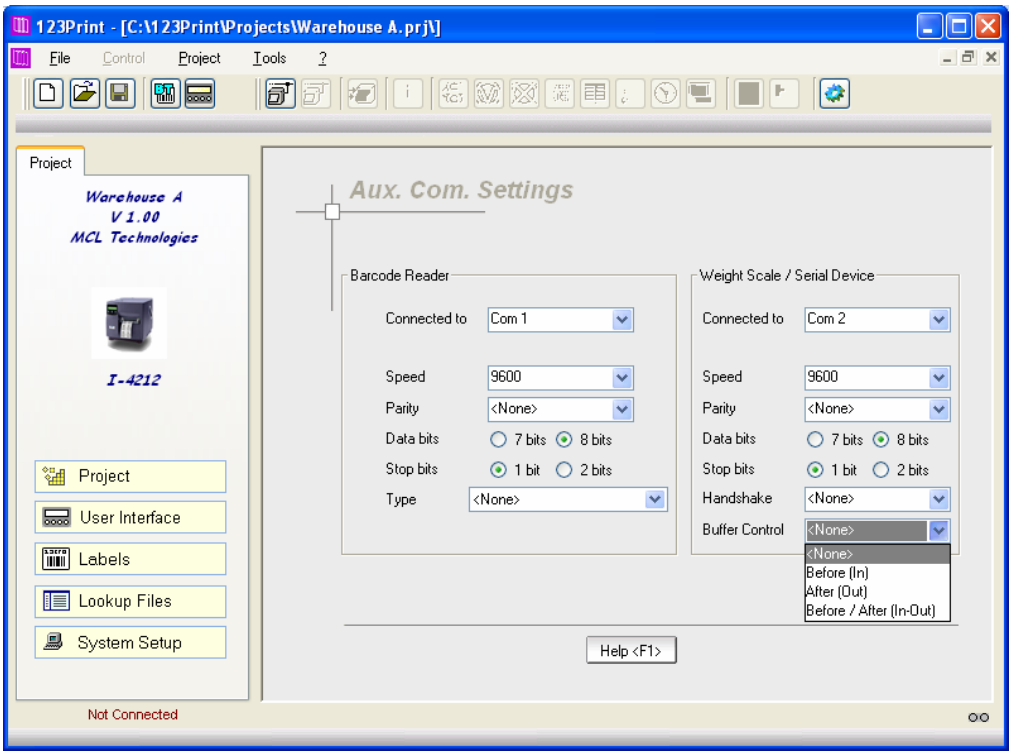
Type allows you to define how you want the scanned data to be saved in the buffer for your 123 Print application

4 Choose the appropriate type from the drop down list as shown below



Com 2 Com 2 (if installed on your Datamax printer) is typically used to support non-barcode scanning peripherals such as weight scales. Any serial device may be connected here.

5 Select Com 2 port settings to match those of your peripheral device



The Com 2 setup allows you to define the speed, the parity, the number of data bits and stop bits and the handshake flow control. You may also define when the input buffer must be cleared:

- Before Read - the input buffer is cleared when the program initiates a "Serial In" process (see Section 5.7.1 – Serial In). Any data received before the printer is in this Input mode will be ignored.
- After Read - the input buffer is cleared when the data is read from the input buffer. Data can be received before the program initiates a "Serial In" process. Data will be buffered in the input buffer until the "Serial In" process reads the buffer.
- Before and After Read - Data will only be accepted when the program has initiated a "Serial In" process, and the input buffer will be cleared after the input buffer has been read.
- Never - The input buffer is never cleared.

4. Designing a Label

Overview

Chapter 4 introduction

This Chapter describes the integration between 123 Print and BarTender to allow you to use BarTender labels in 123 Print projects.

Description

123 Print is integrated with Seagull's BarTender Enterprise Edition. Use BarTender (or other label design software) to create the labels you use in your 123 Print projects.

When running a 123 Print project on a Datamax printer, the labels to be printed must be in DPL format on the printer.

Consequently, if you are using BarTender to create *.btw files, 123 Print generates the necessary DPL code files for you.

This chapter assumes you have prior knowledge about the use of BarTender License Server and BarTender Enterprise Edition.

BarTender Setup

According to Seagull Scientific "For your convenience, the printer setting is saved as part of the label format. Therefore, the next time you need to print the same labels, all you need to do is load the format and print."

However, Seagull also states the following:

"Note: It is always a good idea to select a printer before you begin a label format in order to ensure that the label format will be set up using the correct printer specifications. This is especially true when your labels contain bar code objects. The different bar code density ranges for laser and dot-matrix printers may affect the size of a given label. For example, a bar code that is placed on a label while a laser printer is the selected printer may appear shorter than the same bar code that is placed on the label while a dot-matrix printer is the selected printer."

123 Print requires the printer setting to be for a Datamax printer. Please see Appendix C – Supported Datamax printers for the list of printers currently supported by 123 Print.

Topics

This chapter covers the following topics:

4.1. BarTender Integration

General introduction

This section describes how 123 Print integrates with Seagull's BarTender to help you easily create BarTender labels to include in your 123 Print projects.

The steps that follow require:

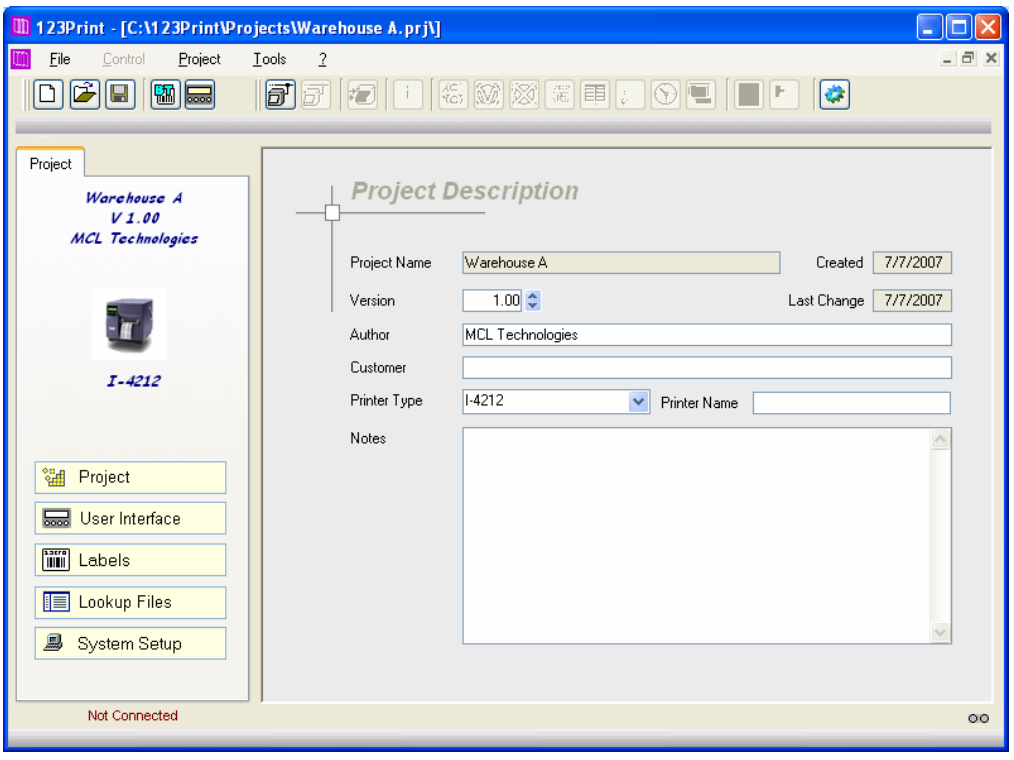
- BarTender Enterprise Edition be installed and activated on your system
- Datamax printer driver for the target printer be installed on your system as a Windows printer for the label you are creating
- The BarTender label you create must have a Datamax printer name saved in the label format.

The preparation of a label for use with a 123 Print project involves both 123 Print and BarTender.

1 Run **123 Print**
2 Click **File**
3 Click **Open**
4 Select the **project** that is to use the **label** you are going to create

The main 123 Print window is displayed as shown here.

Note: The project that was open when you last quit 123 Print is re-opened by default when 123 Print is restarted.

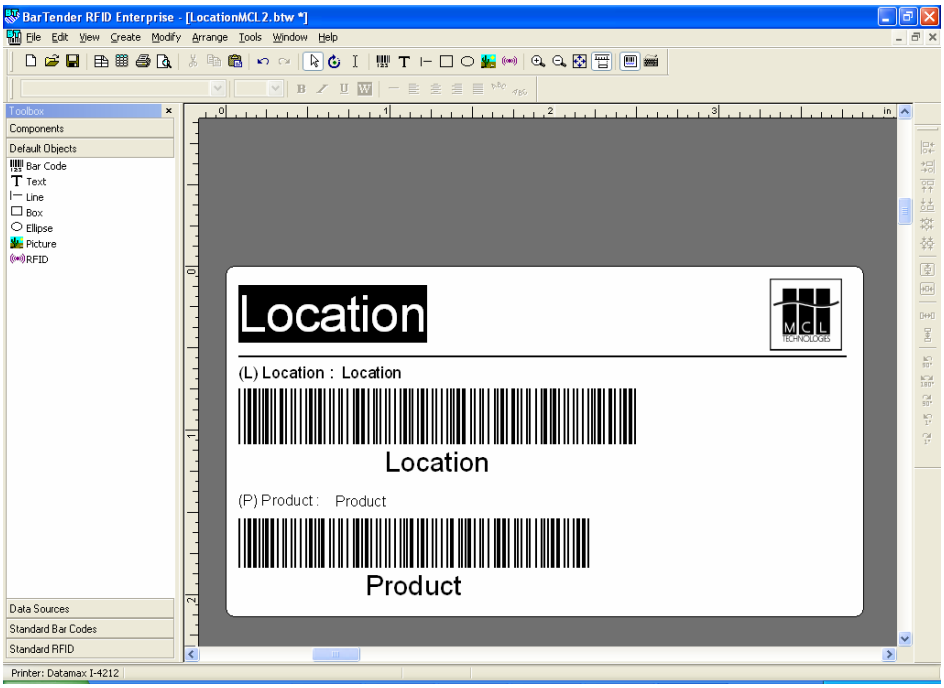


Launch BarTender

On the main 123 Print window tool bar, click the BarTender icon, or on the menu bar:

1 Click **Tools**
2 Click **BarTender**
3 Open an **existing label** or create a **new label** in BarTender
4 Make sure the target Datamax printer model is defined in Bartender's printer settings.

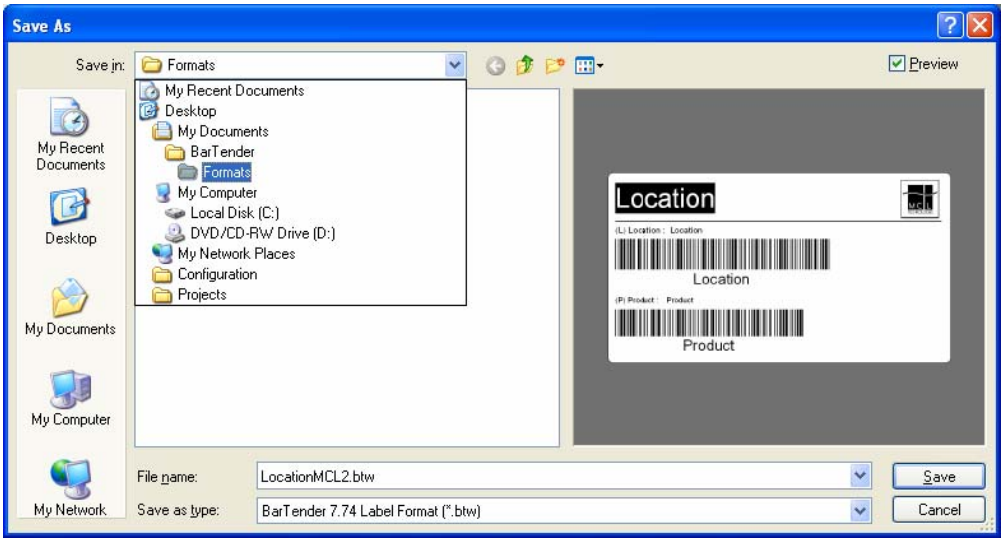
Design your label as you normally would.



Save your BarTender label. On BarTender's menu bar:

5 Click **File**
6 Click **Save As...**
7 Save the label into whichever folder you setup as the default BTW folder when you were setting up 123 Print (see Section 2.3.4 - Others). If you used the default path, save the label to BarTender's default location at C:\.<...>\BarTender\Formats
8 Click **Save**

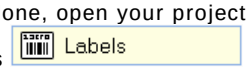
Note: BarTender saves the label with a *.btw extension.



Using your BarTender Label

To incorporate your new label into your project, return to 123 Print.

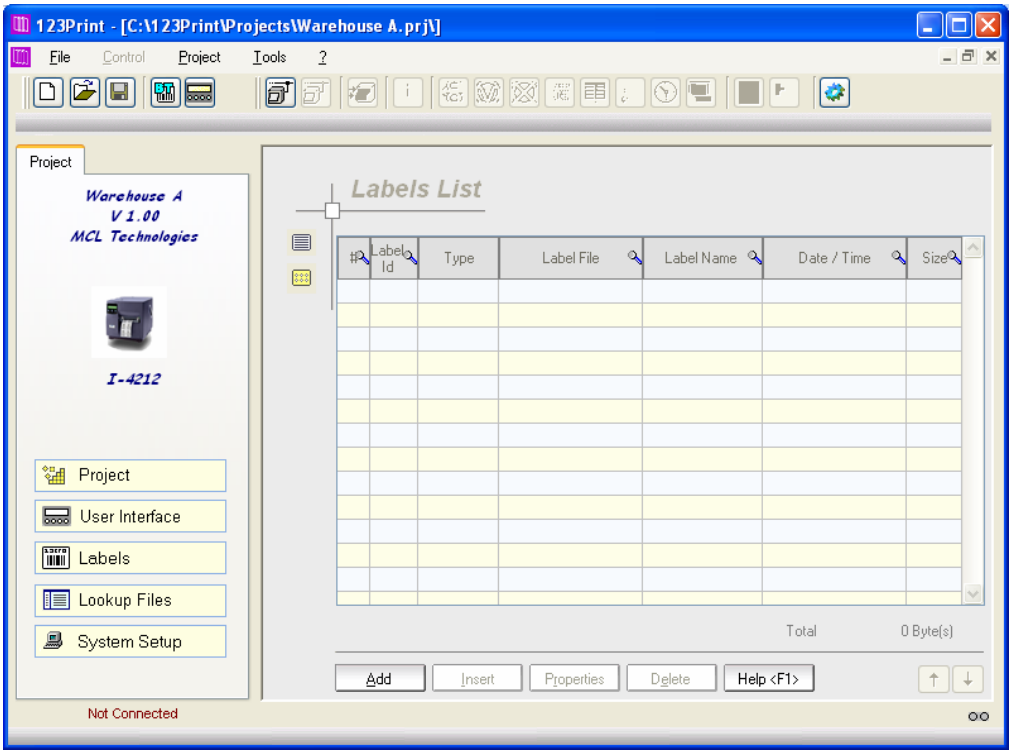
9 If not already done, open your project

10 Click the Labels  button on the left-hand side of the main window.

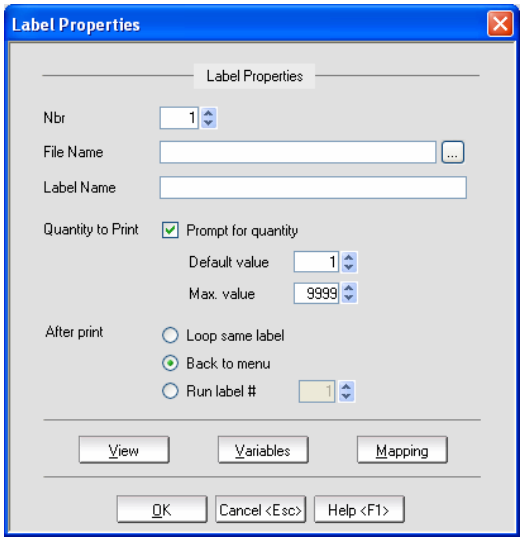
Alternatively, on the 123 Print menu bar,

11 Select **Project**

12 Select **Labels**



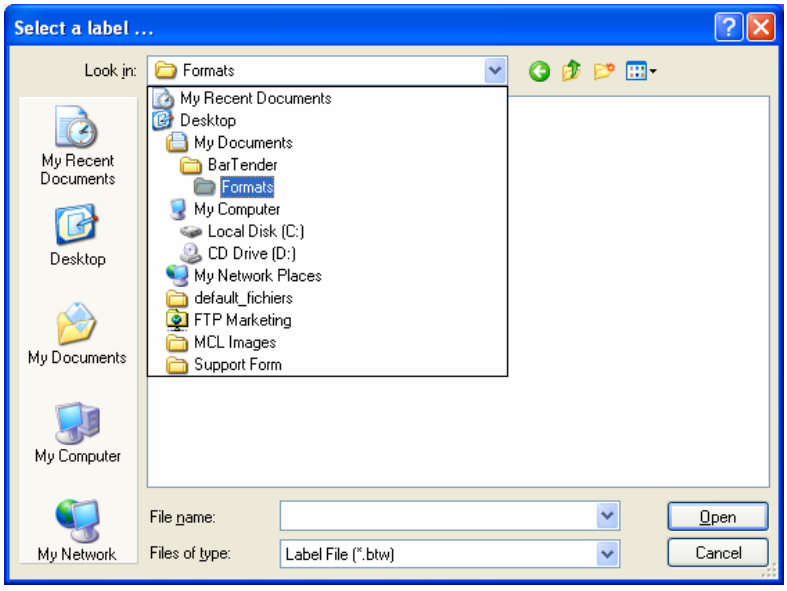
13 Click on the Add  button



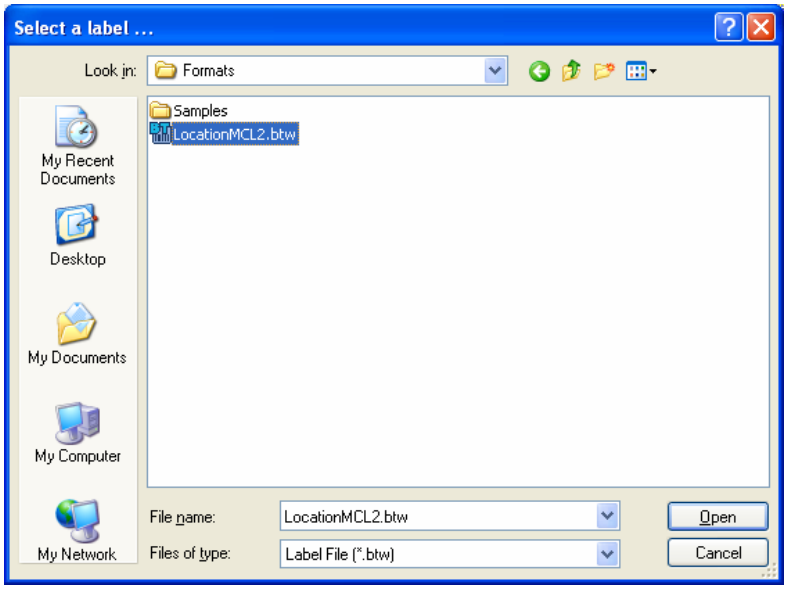
14 Click on the **browse** icon

15 123 Print looks for labels either in the last folder from which a label has been added or in the "btw" folder you selected during setup.

16 Select a label from this folder or navigate to the label you want to use

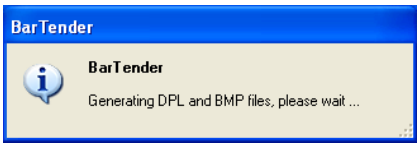


17 Select the label in ***.btw** format



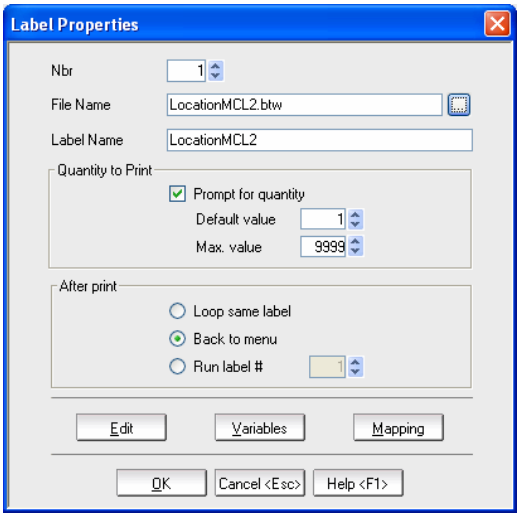
18 Click **Open**

As shown below, 123 Print converts the label to DPL format if BarTender Enterprise Edition is installed and activated on your system.



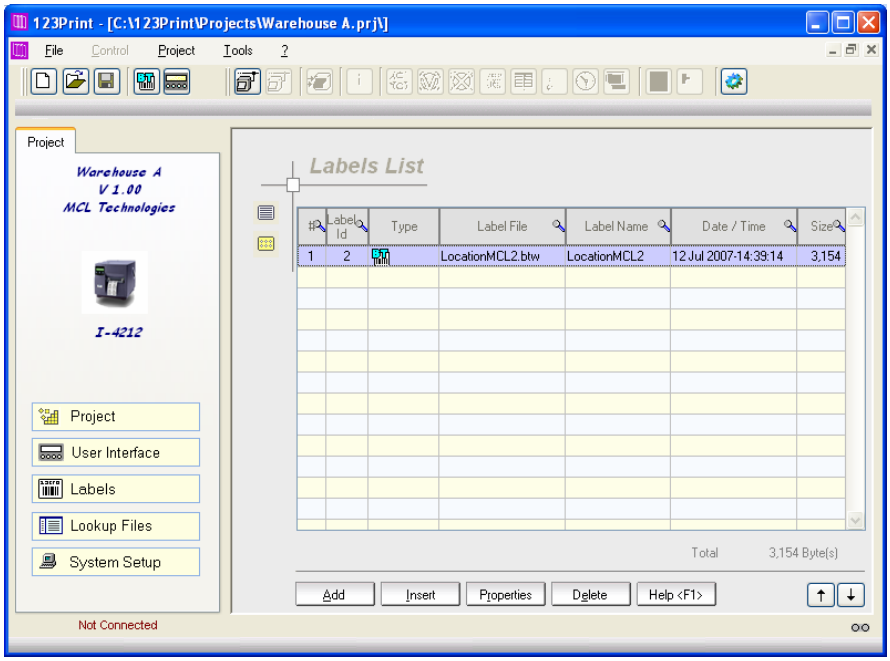
Note: When associating a label with your project, 123 Print creates a **working copy** of your BTW label file in the \label sub-directory of the project folder.

19 When the label conversion is completed, the Labels Properties screen is displayed as shown below. Please reference Section 3.3– Labels for information about Label Properties.



20 Set the **Label Properties** as per Section 3.3– Labels
21 Click **OK**

The label you selected is added to your project as shown here



Label ID is the number you assigned to this label in the Label Properties screen.

The BTW icon under type indicates that the label you have added is a BTW label.

The Label File and Label Name are the names you assigned in the Label Properties screen for the given label.

The Date / Time indicates when the DPL file was created.

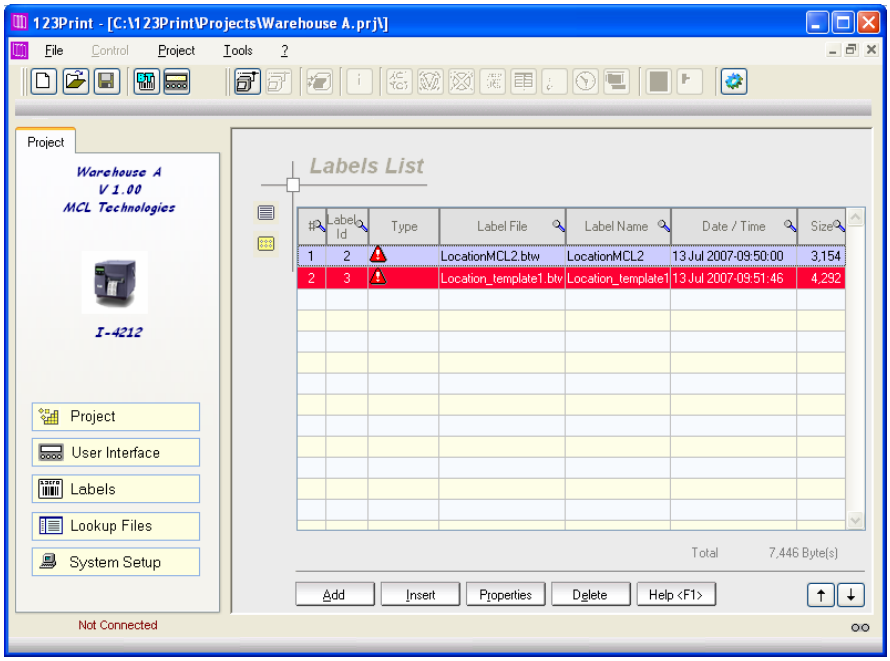
The Size indicates the size of the DPL file. This can be useful in understanding your Datamax printer memory usage.

Editing associated labels

If you edit your BarTender label after having associated it with your 123 Print project, it is important to remember to save your changes both in the **master copy** in BarTender's default label location (<…>\BarTender\Formats) as seen in step 7 above, and in the **working copy**, located by default in **C:\123Print\Projects\<your project>\Labels**

123 Print will detect that the BTW file (your BarTender label format) has been modified. This will be indicated to you as a warning icon , in the labels list, beside all the entries that use the given label. If a label change is detected in an unselected label entry, the entry is highlighted in red as shown below.

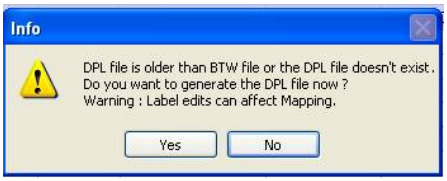
Note: Label edits can affect any Mapping done previously for the given label.



22 Double click on your **label entry**

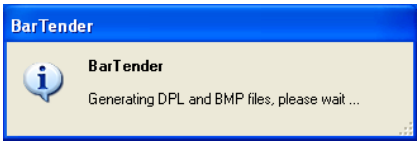
You are prompted to regenerate the DPL file as shown below. This screen also reminds you that any changes to an existing, mapped label can impact the mapping you have already done for the given label.

The following series of screens are presented whether you double click on the label entry in the Labels List or if you click **Mapping** on the Label Properties screen after a label has been edited.

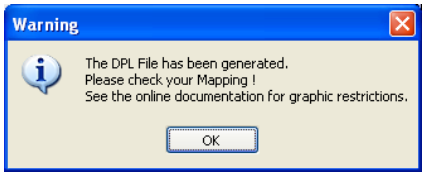


23 Click **Yes**

The following progress screen is displayed.



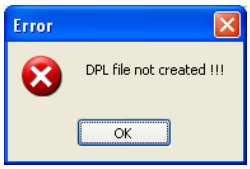
When the DPL code is generated successfully, you receive the following message.



This message reminds you to check to see if your mapping has been affected by the label edits you have made.

The restrictions referenced here are discussed in Appendix E – Mapping Label Graphic Elements.

If for any reason 123 Print cannot generate the DPL code, an error message is displayed as shown below.



This error will occur, for example, if you are using a demo version of BarTender.

5. Using Processes

Overview

Chapter 5 introduction

This chapter explains how to work with processes in 123 Print.

A process is a general term for the commands that you can generate to execute a particular function or to manipulate the data within your project. Processes are actions you can assign following the execution of a label program prompt screen.

Since most of the processes in this chapter use variables, this chapter also includes an introduction to 123 Print variables.

Topics

This chapter covers the following topics and processes

Processes

Description

The processes described in this chapter are tied to a screen associated with a label:

1 Open or create a new **project**

2 Click the Labels button 

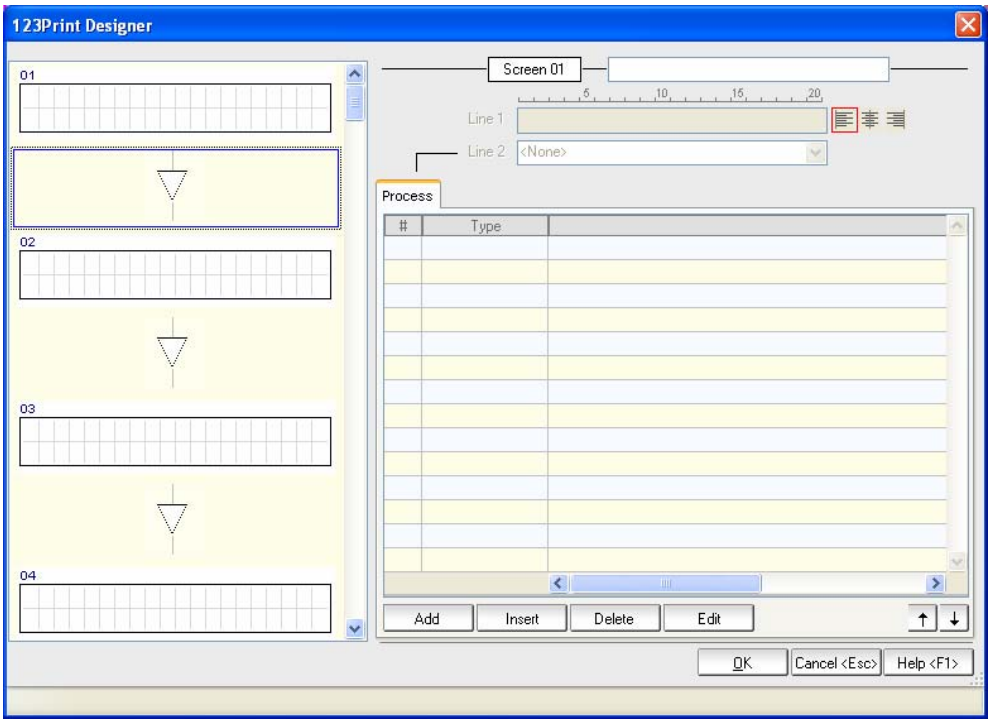
3 Add a label

4 Double click on the label or click label properties

5 Click **Variables**

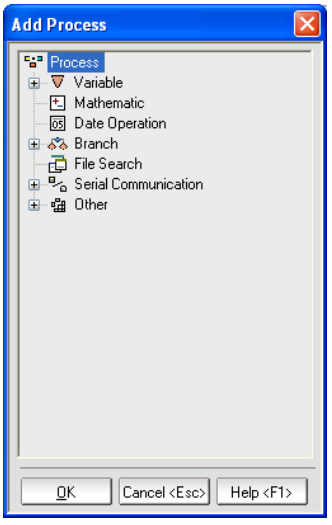
6 Click the arrow  icon between the screens where you want to add a process

The Process window is displayed as shown here



7 Click Add  button to insert a new process

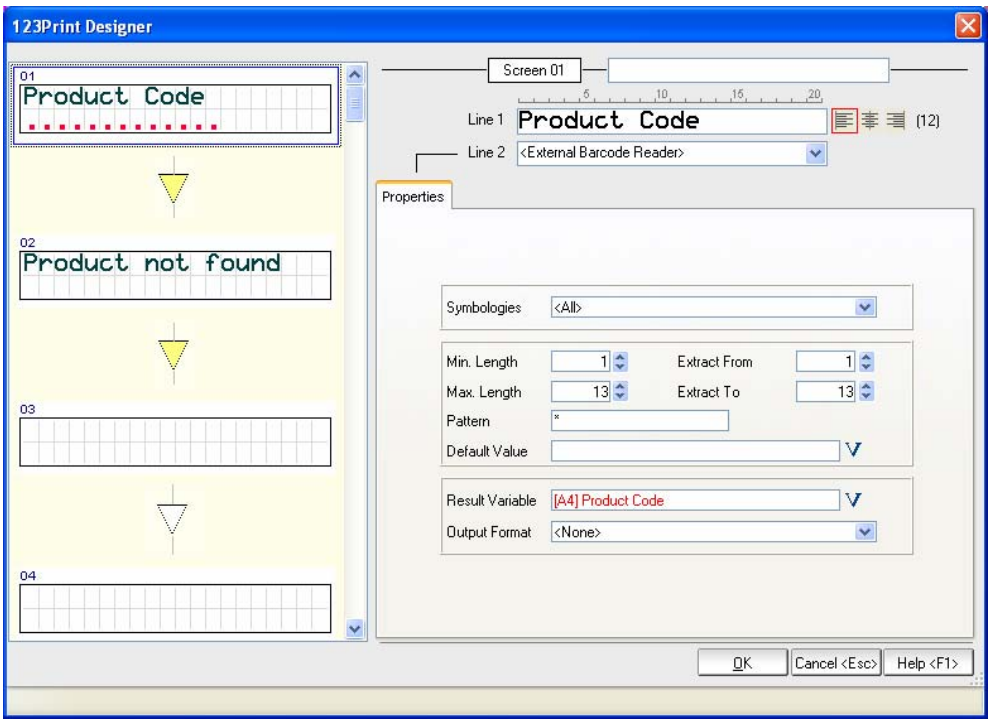
The Add Process dialogue box is displayed as shown here



8 Select the desired process to be added, or
9 Click + in the tree view to view the processes available in a given group of processes
10 Click OK

The processes described in this chapter start from step 8 in this procedure.

When a process(es) have been added to a label screen, the process arrow  icon between the screens turns solid as shown here



5.1. Introduction to 123 Print Variables

General introduction

Most of the processes described in this chapter use variables. Therefore, to understand how to use the processes, it is important to first understand the kinds of variables that are available in 123 Print.

This section describes the kinds of variables available for use in your label programs.

Introduction to 123 Print variables

The following kinds of variables are available for use in your label programs:

- User local
  - User local variables are variables that are used for temporary storage of variable data. These are variables that you have defined for use in a given label program. These variables are not accessible from other label programs.
- All local
  - All local variables is the list of the defined user local variables plus the list of variables available to be defined as user local variables.
- Global
  - Global variables are variables that are used for temporary storage of variable data. These are variables that you define for use in a label program that you want to be able to use in other label programs. The contents of a global variable can be retrieved, updated or modified by the other label programs.
- System
  - System variables contain system information that can be used by your label programs. System variables contain information like the current date & time, the current record number in a local file, the program name and version.
  - You cannot write to a system variable. The System Variables are grayed out if you are working on a process or properties window where you are required to write to a variable.

Variables are used through-out the development of your label program.

Variables may be used in your program wherever the  icon is displayed. As you will see in the process descriptions that follow in the subsequent sections, you are not always required to use variables. You can frequently type constants instead of using variables. Sometimes the choice between using a constant or a variable is clear. Other times it is simply a design preference.

Each of the variables in 123 Print has a 2-digit code assigned to it:

- All local variables are in the following range of codes:
  - A0 – A9
  - B0 – B9
  - C0 – C9 … K0 – K9
- Similarly, the global variables available are in the following range of codes:
  - L0 – L9 … U0 – U9
  - However, the codes T0, T1, and U3 in this range are reserved for system use and are therefore not available for use as global variables.
- System variables use a combination of number codes and letter number codes. The system variables are fixed and cannot be modified by you.

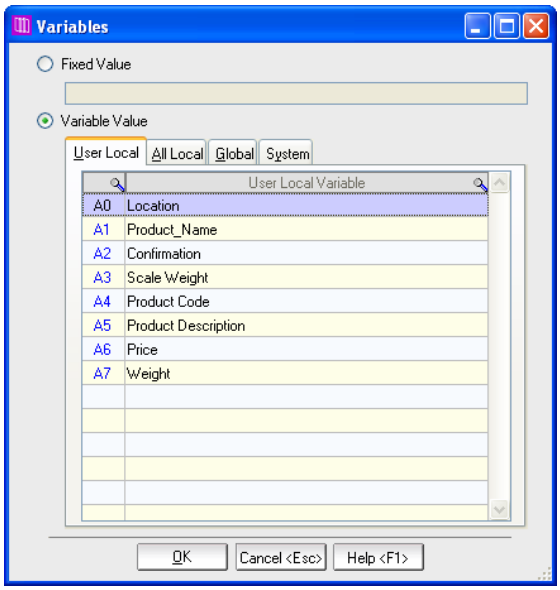
Below are some examples of the different kinds of variables. To see this variables dialogue box, simply click on the  icon wherever you see it.

User local

Below is an example of a list of user local variables associated with a Price Label.

This is a view list only. You cannot define a new user local variable in this list. To see the list of user local variables in a label program, on the Variables dialogue box,

11 Click on the User Local tab



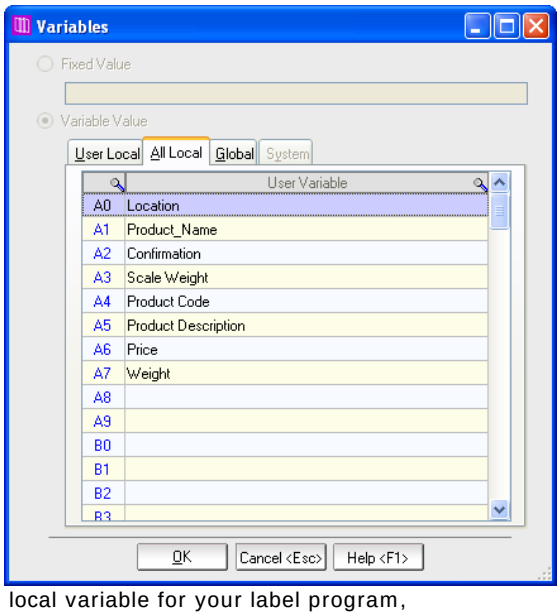
All local

Below is the list of all local variables available for a Price Label. This list includes both those that have already been defined and those available for definition as user local variables.

This is where you define new user local variables for your label program.

To see the list of all local variables in a label program, on the Variables dialogue box,

12 Click on the All Local tab



To define a new user local variable for your label program,

13 Select an undefined variable, A5 for example in the above list,

14 Enter the name you want for this variable

15 Click OK or define another variable

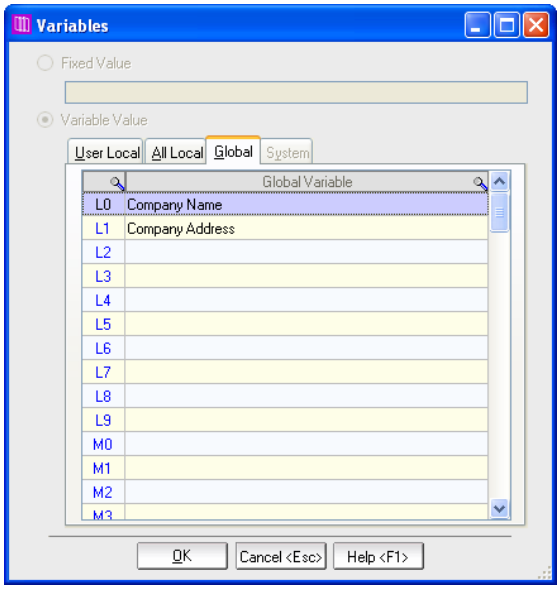
Global

Below is the list of global variables used in your 123 Print project. These variables may be used by any label program.

This is where you define new global variables for your label programs.

To see the list of global variables is a label program, on the Variables dialogue box,

16 Click on the Global tab



To define a new global variable for your label program(s),

17 Select an undefined variable, L2, for example, in the above list

18 Enter the name you want for this global variable

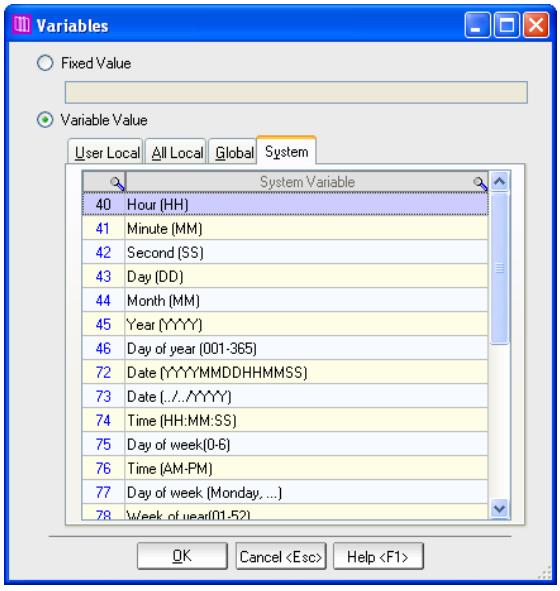
19 Click OK or define another global variable

System

Below is a list of some of the system variables available for use with a Price Label.

To see the list of system available for use in a label program, on the Variables dialogue box,

20 Click on the System tab



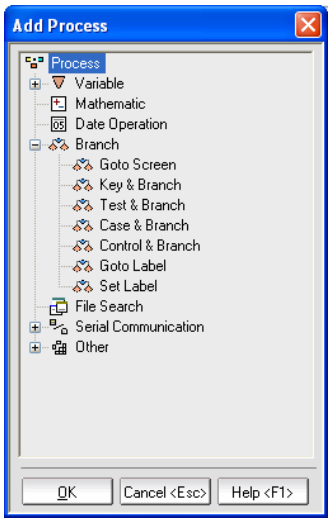
5.2. Branch

General introduction

This section describes the possible branching related operations that you can perform in your label program.

Branch Processes

1 Click the plus sign (+) beside **Branch** in the Add Process dialogue box to see the list of available branching processes.
2 Select the Branch process you want to add to your program



5.2.1. Case and Branch

General introduction

The Case & Branch process allows you to compare the value of a variable input with up to six other variables or values.

The Case and Branch command will check for equality only.

As soon as an equality is found, the process branches to the defined destination (Label, or screen ...)

If all the comparisons are false, the action or screen in the Otherwise Goto list is performed.

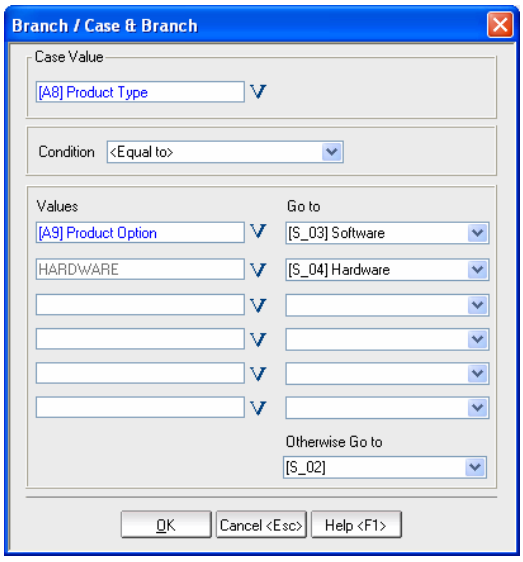
Case and Branch

To compare a variable or value with other variables or values, proceed as follows:

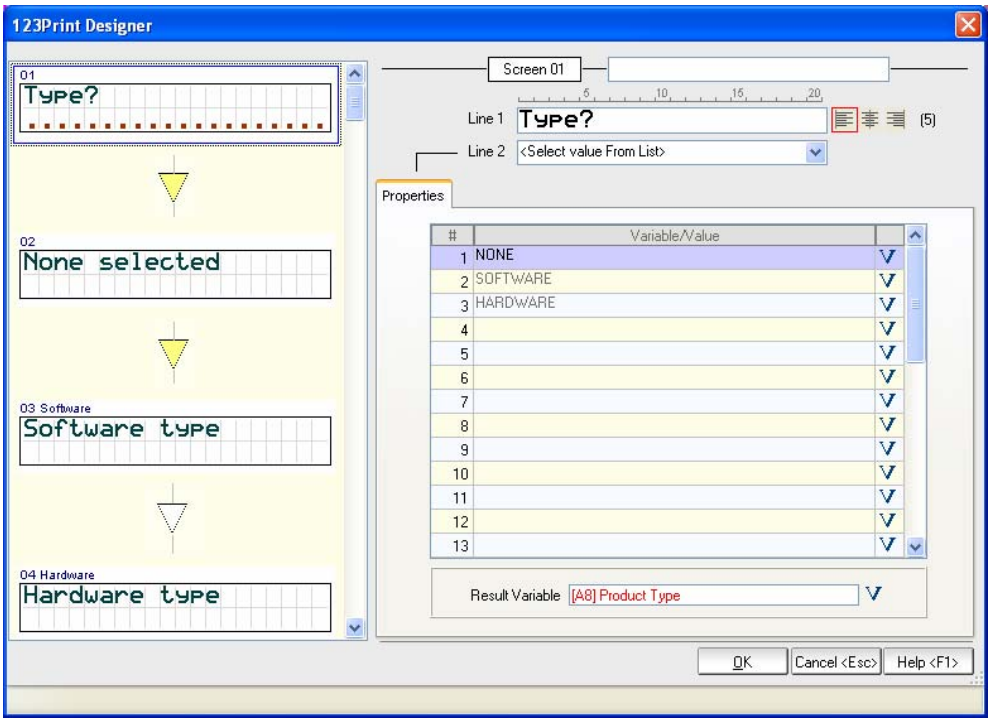
1 Add the process **Case & Branch** to your label program
2 In the **Case Value** box, enter the **value** or select the variable you want to compare.
3 In the **Equal** boxes, enter the **values** or select the variables you want to compare against the value or variable selected in the Case Value box.
4 In the corresponding **Goto** boxes, select the **action** to be performed or the screen to go to if the test results are true.
5 In the **Otherwise Goto** box, select the **action** to be performed or the screen to go to if the test results are false.
6 Click **OK**

Example

In this example, the user is prompted to enter a product type. The Case and Branch process then compares the entered product type with predefined values. These values can be constants or variables. This example shows both. The contents of [A8] Product Type are compared against the value found in variable [A9] Product Option and against the constant HARDWARE.

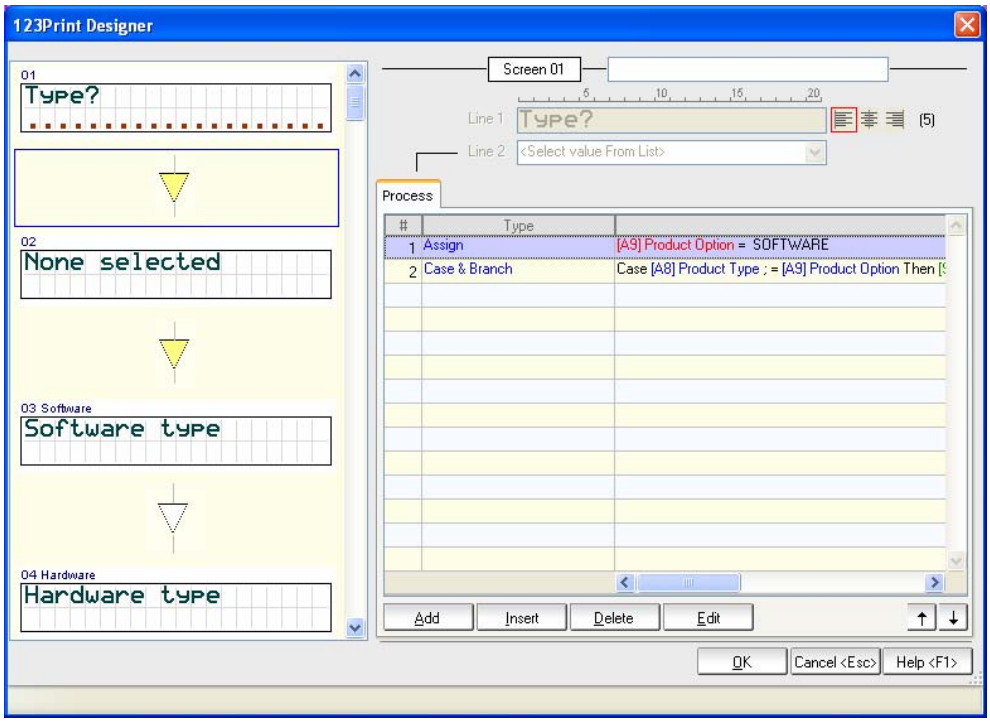


When a match is found, the label program branches to a screen according to the product type entered. If there is no match, the program goes to screen 2. If the product type entered matches the contents of [A9] Product Option, the program goes to screen 3. If the product type entered is HARDWARE, the program goes to screen 4. The program flow and process statement are shown below.



In this example, the Input Method chosen is **Select Value from List** to set up a list of possible product types. The user scrolls through this list and selects the appropriate product type—NONE, SOFTWARE, or HARDWARE.

In the process screen, the variable [A9] Product Option is given the value SOFTWARE before the Case and Branch process is executed.



5.2.2. Control and Branch

General introduction

The Control and Branch process allows you to compare the contents of a variable against a specific pattern.

Depending on the result of the check, the program will branch to the defined destination—a screen, label or code line.

Control and Branch

To compare a character pattern with the contents of a variable, proceed as follows:

1 Add the process **Control & Branch** to your label program
2 In the **If Value** box, select the **variable** for which you want to compare the character pattern
3 In the **Follows Pattern** box, select the pattern. This pattern can consist of:
- The Letters A to Z to specify a specific letter
- The numbers 0 to 9 to specify a specific number
- The dollar sign ($) stands for `any numeric character'
- The double quotes (") stand for `any alphabetic character'
- The underscore (_) stands for any alphanumeric character
- The interrogation mark (?) stands for `ignore'
- The asterisk (*) stands for `ignore the rest of the input from this point on'

4 In the **Then go to** box, select the **action** to be performed or the screen to go to if the test result is true.
5 In the **Else go to** box, select the **action** to be performed or the screen to go to if the test result is false
6 Click **OK**

Example

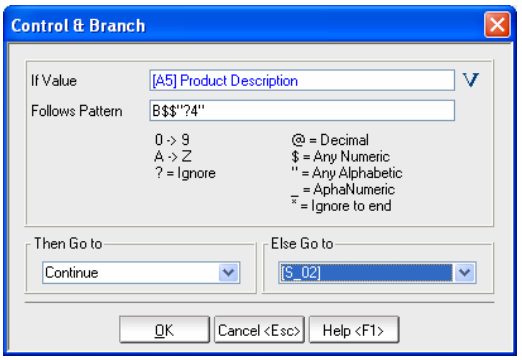
The following variable contents give the following results:

If,

Follows Pattern = B$$"?4*

Then,

Variable Contents	Result
B21C14BB34	True
A21C14BB34	False - first character not "B"
B999A4	False - fourth character not alphabetic



If the contents of the variable [A5] Product Description satisfy the pattern, then the application will continue. Otherwise, it will branch to Screen 2.

5.2.3. Goto Label

General introduction

The Goto command is an "unconditional" branch within the label program. It will branch to the tags you set up in your program using the Set Label process (see Section 5.2.6).

What is a label (reference)

In this context, a label is a reference point in your program that can be set to identify a specific position in the program, such as a certain line in a process. Once a label reference is entered it always refers to the same position in your program.

When a label is defined in a program, a direct jump to that location can be made from anywhere within the program.

Goto Label

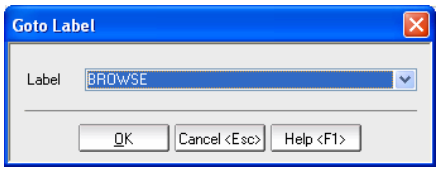
To set a goto screen function, proceed as follows:

1 Add the process **Goto Label** to your label program

The Goto Label dialogue box is displayed.

Example

In this example the program will jump to the location of the reference point “Browse” that is set by the Set Label process.



5.2.4. Goto Screen

General introduction

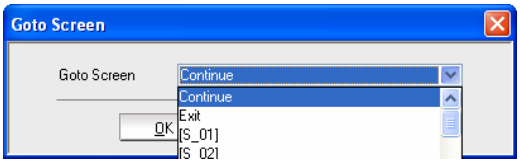
The Goto command is an "unconditional" branch within the label program.

Goto Screen

To set a goto screen function, proceed as follows:

1 Add the process **Goto Screen** to your label program

The Goto Screen dialogue box is displayed



2 Select the **screen** you want to jump to from the Goto Screen drop down box. The list includes all the screens found in your program.

3 Click **OK**

Note: You can only go to a screen that has a process tied to it or contents on line 2 of the screen.

5.2.5. Key and Branch

General introduction

The Key & Branch process allows you to request a program stop and define to where the program should branch depending upon user key input. You can also define a time-out and to where the program should branch if a time-out occurs without user input.

Key and Branch

To branch to a specified screen or perform a specified action when a certain key is pressed, proceed as follows:

1 Add the process **Key & Branch** to your label program

2 In the **Seconds** time-out box, type the **value** you want for the time-out interval, or use the up/down arrows beside the box to increment/decrement the value in the box. If there is no keyboard activity during the time-out period and a time-out occurs, then the action or screen selected in the GoTo box is performed.

3 In the **GoTo** box, select the **action** to perform or the screen to go to if the time-out occurs.

4 If you want to **branch to an action** or screen when the user presses the Clear, Up, Down, PgUp, PgDown or Enter key on the printer or connected keyboard, assign the action or screen in the box corresponding to the given key.

5 If you want to **branch to a function** or screen when the user presses some **other keys** on the printer or keyboard connected to the printer, proceed as follows:

- In the Key boxes, select the key of your choice.
- In the GoTo boxes next to the Key boxes, select the action or screen you want to branch to if the key is pressed.

6 Click **OK**

Example

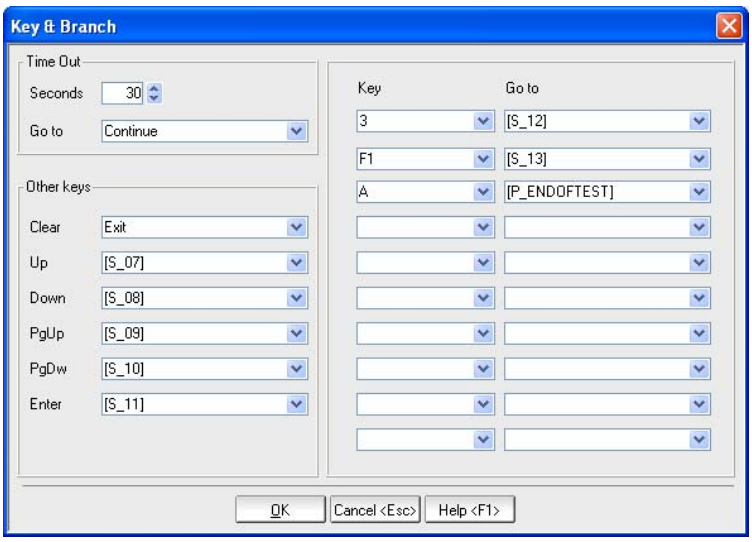
In this example, if no key is pressed after 30 seconds, the application continues to the next operation in the program.

If the user presses Clear, the program will exit.

If the Up key is pressed on the printer front panel or connected keyboard, the program branches to screen 7.

If any of the other keys indicated are pressed (excepting the letter <A>), the program branches to the corresponding screen.

If the letter <A> is pressed, the application branches to the code label P_ENDOFTEST in the program. See Section 5.2.6 - Set Label process for more information about code labels.



5.2.6. Set Label

General introduction

The Set Label process allows you to set a label (reference) in your label program. A label can be up to 18 characters long.

These reference points can be used for jumping and branching within your label program (See Section 5.2.3 - Goto Label).

Only uppercase alphabetic and numeric characters can be used in the name of the label.

What is a label (reference)

In this context, a label is a reference point in your program that can be set to identify a specific position in the program, such as a certain line in a process. Once a label reference is entered it always refers to the same position in your program.

When a label is defined in a program, a direct jump to that location can be made from anywhere within the program.

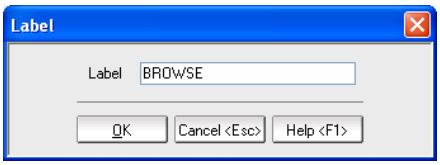
Set Label

To set a label, proceed as follows:

1 Add the process **Set Label** to your label program
2 **Type** the name you want to identify this tag.
3 Click **OK**

Example

In this example the program sets a reference point “Browse”. Using this label you can jump to this point from anywhere in your program.



5.2.7. Test and Branch

General introduction

The Test & Branch command allows you to set up a test and, depending on the test result, branch to a specified screen or label.

Test and Branch

To test a variable and branch upon a condition, proceed as follows:

1 Add the process **Test and Branch** to your label program
2 In the **If Value** box, select the variable you want to test or type any text.
3 Determine if you want to make a String or Numeric comparison
4 Select the **comparison criteria**.
5 In the **Value 2** box, select the variable against which you want to test the variable selected in the first parameter. You may also type any text here instead of selecting a variable.
6 In the **Then Goto** box, select a screen or action to go to if the comparison is true.
7 In the **Else Goto** box, select a screen or action to go to if the comparison is false.
8 Click **OK**

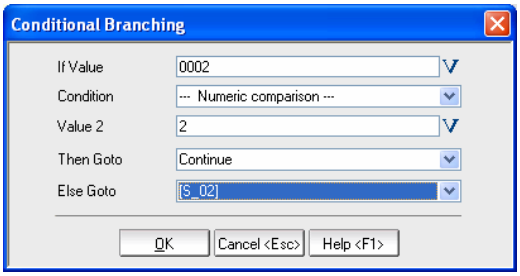
String or numeric?

- If you select String, the test will consider both values as 'text' and the operation will be purely a 'text' field comparison.

  Example: If the first variable contains 0002 and the second variable contains 2, the result of the 'is equal to' will be 'False'.

- If you select Numeric, the test will be done on numeric values.

  Example: If the first variable contains 0002 and the second variable contains 2, the result of the 'is equal to' will be 'True'.



5.3. Date Operation

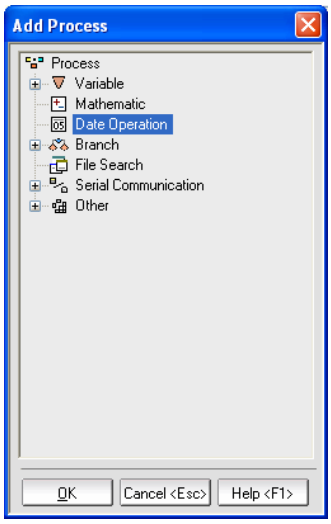
General introduction

This section describes the possible operations that you can perform on a date in your label program:

- Add/Subtract
- Date Difference
- Conversion

Date Operation

1 Click on the **Date Operation** process
2 Click **OK**



5.3.1. Date Add/Subtract

Add/Subtract

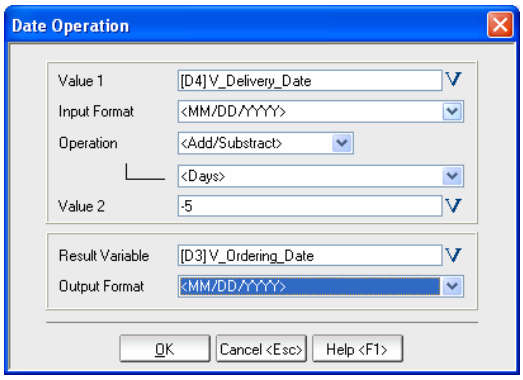
The Date Add/Subtract process allows you to add or subtract a number of days to or from a date variable (i.e. a variable that contains a date) and save it in a new variable.

To add or subtract days to a date variable, proceed as follows:

1 Add the process **Date Operation** and click **OK**
2 In the Value 1 box, create or select the **input date variable** from the available User Local variables, All Local variables, Global variables or System variables.
3 In the Input Format box, select the **format** of the input date.
4 In the Operation box select **Add/Subtract** and the **measure of time** (days, weeks, months, etc.)
5 In the Value 2 box, type the **quantity** of the given unit of measure to add to the input variable or select a variable that contains the value to be added or subtracted.
6 In the Result Variable box, select or create the variable in which you want to save the **resulting date** and click OK.
7 In the Output Format box, select the **format** of the date desired in the resulting variable.
8 Click **OK**.

Example

The following example takes the variable [D4] V_Delivery_Date and subtracts 5 days (adds -5 days) to determine the ordering date. The result is saved in the variable [D3] V_Ordering_Date.



5.3.2. Date Conversion

Conversion

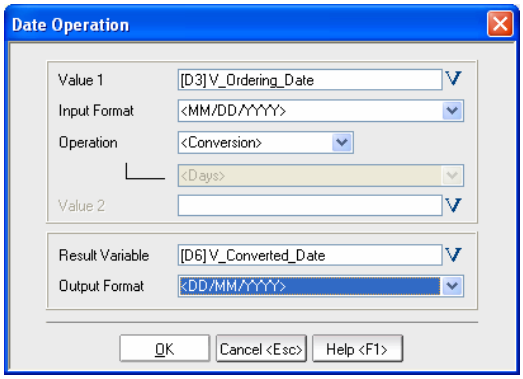
The Convert Date process allows you to convert a date variable into a predefined format.

To convert the format of a date, proceed as follows:

1 Add the process **Date Operation** to your label program and click **OK**
2 In the Value 1 box, create or select the **date variable** to be converted from the available User Local variables, All Local variables, Global variables or System variables.
3 In the Input Format box, select the **format** of the input date.
4 In the Operation box select **Conversion**
5 In the Result Variable box, select or create the variable in which you want to save the value of the **converted** date and click OK.
6 In the Output Format box, select **format** to which the date is to be converted
7 Click **OK**.

Example

The following example converts the date found in [D3] V_Ordering_Date from the format mm/dd/yyyy to the format dd/mm/yyyy and saves the result in the variable [D6] V_Converted_Date



5.3.3. Date Difference

Difference

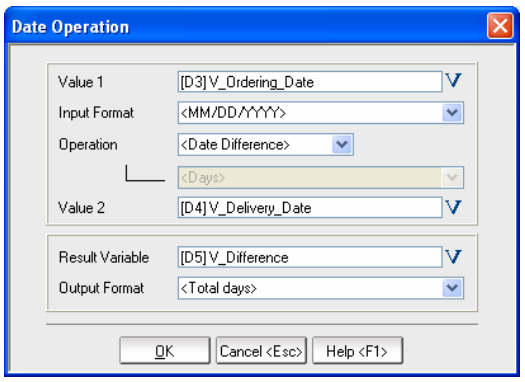
The Date Difference process allows you to compute the number of days, hours, minutes, seconds, or milliseconds between two dates.

To determine the period of time between two dates, proceed as follows:

1 Add the process **Date Operation** to your project and click **OK**
2 In the Value 1 box, create or select the **first date variable** from the available User Local variables, All Local variables, Global variables or System variables.
3 In the Input Format box, select the **format** of the input date.
4 In the Operation box select **Date Difference**
5 In the Value 2 box, create or select a variable that contains the second date to be used in the calculation.
6 In the Result Variable box, select or create the variable in which you want to save the value of the **difference** between the dates and click OK.
7 In the Output Format box, select **unit of measure** to be used to express the difference between the two dates.
8 Click **OK**.

Example

The following example calculates the number of days between the variable [D3] V_Ordering_Date and the variable [D4] V_Delivery_Date and saves the result in a variable [D5] V_Difference.



5.4. File Search

General introduction

The File Search command allows you to read the fields of a record in a file and assign their contents to variables. The file records are searched using a value you provide as the lookup key.

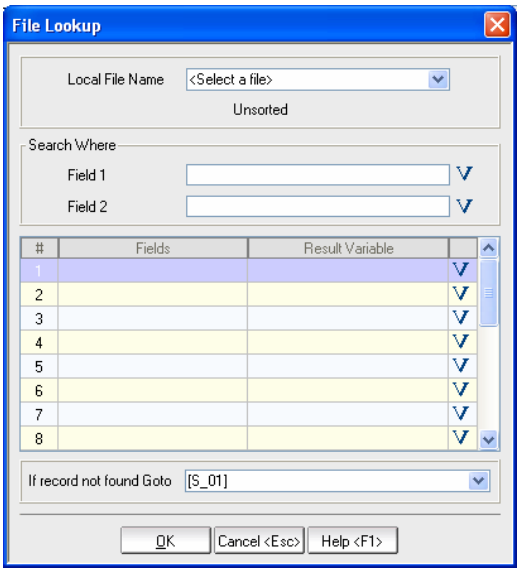
You can search for a record in a file using a lookup key for either the first or the second field in the file.

File Search

To read fields from a file and store them into variables, proceed as follows:

1 Add the process **File Search** to your label program.

The File Lookup dialogue box is displayed as shown here



2 In the **Local File Name** box, select the file you want to **search**.

The fields of your file records are listed in the Fields column of the table.

You can search the file using a lookup key for either the first or second field in the records. Field 1 represents a lookup key for the first field in the file; Field 2 represents a lookup key for the second field in the file.

If your lookup file is unsorted, you may use both the first and second fields in your search. If your lookup file is sorted by the first field, you may use only the first field in your search. If your lookup file is sorted by the first and second fields, you may use both the first and second fields in your search.

3 In the **Field 1** box, type the **value** or select a variable to use as your first field lookup key

4 In the **Field 2** box, if needed, type the **value** or select a variable to use as your second field lookup key

Once the file is searched and a match is found, you can copy the contents of the record into variables.

5 In the **Fields** column of the table, consider which fields (at least one) you want to **assign** to an existing or new variable.

6 Click to open the Variables dialogue box.

7 Select or create the **Result variable** to which you want to assign the corresponding field contents.

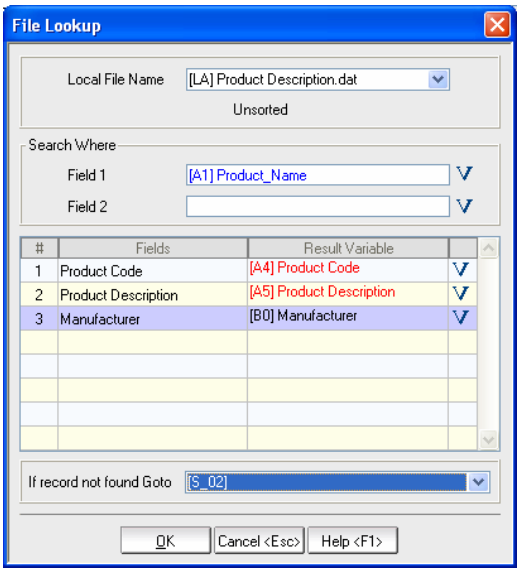
8 In the **If record not found Goto** box, select the action to perform or the screen to go to if the record is not found.

You may right mouse click a Result Variable entry at any time to get a list of edit options for that entry: Copy, Cut, Paste, Delete, and Variables.

Example

The following example searches the first field of the lookup file **Product Description** for the value found in the variable [A1] Product_Name. When a matching record is found the contents of the record fields Product Code, Product Description and Manufacturer are copied respectively into the variables [A4] Product Code, [A5] Product Description, and [B0] Manufacturer.

If no match is found, the application jumps to screen 2 in your project.



5.5. Mathematic Operation

General introduction

The Mathematic Operation process allows you to perform the following operations on a variable:

- Add
- Substract
- Multiply
- Divide
- Calculate the remainder after a division operation (%)

Mathematic Operation

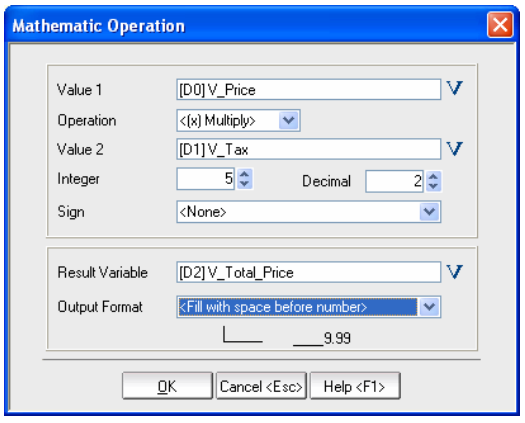
To perform an arithmetic operation on a variable, proceed as follows:

1. Add the process **Mathematic Operation** to your label program
2. In the **Value 1** box, type or select the **first variable** or enter a value to be the first part of the operation.
3. Click the **operation** to be performed on the data.
4. In the **Value 2** box, type or select the **second variable** or enter a value to be the second part of the operation.
5. Enter a value in the **Integer** box to indicate the number of integers you want in the resulting number. A '5' here will allow a maximum number of 99999.
6. Enter a value in the **Decimal** box to indicate how many decimal positions you want in the resulting number. A '2' here will allow a maximum decimal of 0.99.
7. In the **Sign** box, select the sign, if any, you want to precede the resulting number.
8. In the **Result Variable** box, select or create the variable in which you want to save the **resulting number** and click OK.
9. In the **Output Format** box select the special format, if any, that you want applied to the resulting number. Select the Fill of your choice:
   - Click Zeroes or Blank to fill the open spaces with zeroes or blanks when the input data is smaller than the required input.
   - Click None if no fill is desired.
10. Click **OK**

Example

This example computes a total price by calculating a tax into a price.

This process formats the resulting variable with 5 integers with leading blanks and 2 decimal positions.



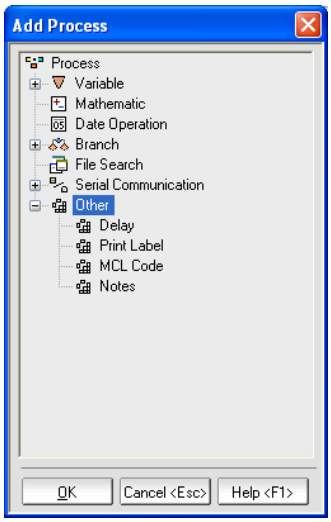
5.6. Other

General introduction

This section describes the various miscellaneous processes that you can perform in your label program.

Other Processes

1 Click the plus sign (+) beside **Other** in the Add Process dialogue box to see the list of other available processes
2 Select the Other **process** you want to add to your program



5.6.1. Delay

General introduction

This section describes how to use the delay process.

Use this process any time you want to insert a pause in your application. This is used frequently to display a screen for a couple of seconds to give a user enough time to read it.

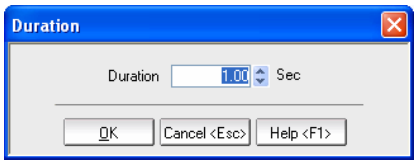
Delay

To add a delay to your project, proceed as follows:

1 Add the process **Delay** to your program and click **OK**

2 In the Duration box, insert the value you want for the delay, or use the up/down arrows beside the box to increment/decrement the value in the box.

3 Click **OK**



5.6.2. MCL Code

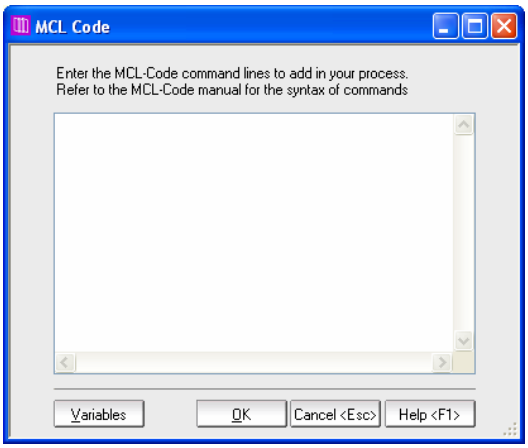
General introduction

The MCL Code box allows you to insert MCL code language command lines directly into your label program.

MCL Code

To insert a process line in MCL Code, proceed as follows:

1 Add the process **MCL Code** to your label program
2 **Type** the MCL Code for the process lines you want to add to your program
3 Click the **Variables** button in the lower left-hand corner of the dialogue box to access the Variable List as necessary.
4 Click **OK**



5.6.3. Notes

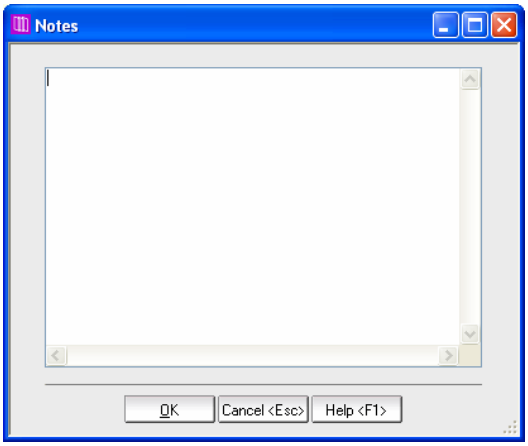
General introduction

The Notes process allows you to insert comment lines in your label program. This will help in the understanding of some special routines.

Notes

To insert a comment, proceed as follows:

1 Add the process **Note** to your label program
2 **Type** your comment.
3 Click **OK**



5.6.4. Print Label

General introduction

The Print Label process allows you to initiate the print of any label included in your project. You can initiate the print to occur

- On the printer where your project is running.
- On a printer connected to the printer where your project is running (cascading printers).

Print label

To initiate a label print, proceed as follows:

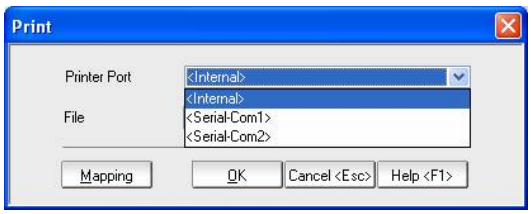
1 Add the process **Print Label** to your label program

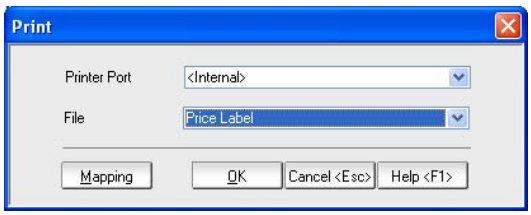
2 In the Printer Port box, identify the port you want to print on
   - Select **Internal** if you want to print on the printer where your project is running
   - Select one of the other **ports** if you want the label to print on a secondary printer

3 In the File box, select the **label** you want to print from the drop list of labels. This list includes all the labels available in your **project**.

4 Click the **Mapping** button and make any necessary changes to the mapping of the label you want to print. This launches the same mapping function as that described in Section 3.3.3 – Mapping.

5 Click **OK**





5.7. Serial Communications

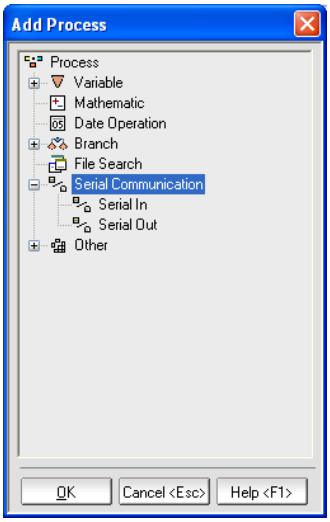
General introduction

This section describes the possible serial communications operations that you can perform in your label program.

Serial communication processes

1 Click the plus sign (+) beside **Serial Communication** in the Add Process dialogue box to see the list of available processes for serial communications

2 Select the Serial Communication **process** you want to add to your program



5.7.1. Serial In

General introduction

The Serial In process allows you to create an input process that waits for data coming in from an auxiliary device.

The format of the expected data is defined here, and a time out can be setup to avoid an indefinite wait for the input.

Serial In

To receive data from an auxiliary port, proceed as follows:

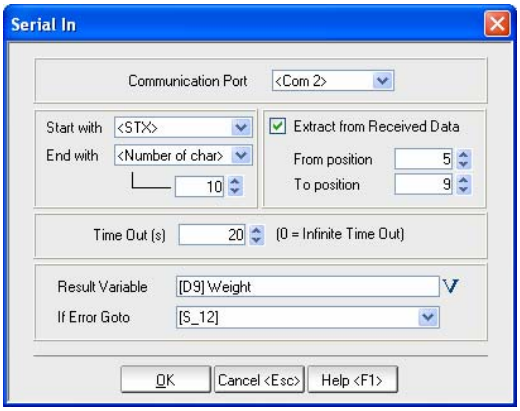
1 Add the process Serial In to your label program
2 Select the Communication **Port** that this process will use to receive data.
3 In the **Start with** box, click the appropriate start character to beginning receiving:
   - **None** if you do not want to wait for a special start character.
   - **STX** if you want to wait for a Start-of-Text character.
4 In the **End with** box, click the appropriate stop character to signal the end of the incoming data stream:
   - **ETX** if you want an End-of-Text character as the stop character.
   - **CR** if you want a Carriage Return as the stop character.
   - **Number of char** if you want to stop receiving after a certain number of characters has been received. In the associated box, type a number or use the arrows to indicate the number of characters to be received from the auxiliary device (after the 'Start with' character has been received).
   - Choose one of the other available options as appropriate
5 If you want to extract only part of the received data, check the checkbox beside **Extract from Received Data**
6 To extract from the received data, indicate the **From position** and the **To position** of the extraction by entering values or using the arrows to increment or decrement the existing values.
7 In the Timeout box, set the time-out value to be used (in seconds). This option sets up a time-out duration for this process. When a time-out occurs, the **If Error Goto** branch of the process is executed.
8 Identify the **Result Variable** in which the received data or extracted data should be saved.
9 Click  to open the Variables dialogue box.
10 Select or create the variable to be used to save the received data and click OK.
11 In the **If Error Goto** box, select the action to perform or the screen to go to if an error occurs.
12 Click **OK**

Example

This example waits for incoming data on serial com port 1. When a start-of-text character is received, the process will wait until 10 characters have been received. When the 10 characters have been placed in the input buffer, the serial port is closed and the data is passed to the application. Any additional characters are discarded.

The data found in positions 5-9 of the received data are extracted and saved in the variable [D9] Weight.

If a time-out occurs while receiving data, the application goes to screen 12 to display a communications error message.



Abbreviations

STX	Start-of-Text (02 hex)
ETX	End-of-Text (03 hex)
CR	Carriage Return (0D hex)
LF	Line Feed (0A hex)
TAB	Horizontal Tab (09 hex)
NULL	NULL (00 hex)

Note: Any hexadecimal value can be entered in the serial data stream. In order to define an ASCII character by its hexadecimal format, use the \ (back slash) character in front of the hexadecimal value.
\02 represents the Start-of-Text value.
\03 represents the End-of-Text value
\0D\0A represents the sequence “carriage return – line feed”.

5.7.2. Serial Out

General introduction

The Serial Out process allows you to create an output process that sends data out a serial com port to an auxiliary device.

The format of the data to be sent is defined here.

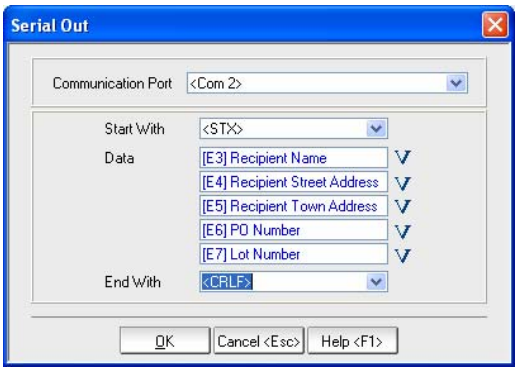
Serial Out

To send data to an auxiliary port, proceed as follows:

1 Add the process **Serial Out** to your label program
2 Select the Communication **Port** that this process will use to send the data.
3 In the **Start with** box, click the appropriate character to be used as the first character in the data stream to be transmitted :
   - **None** if you do not want to wait for a special start character.
   - **STX** if you want to wait for a Start of Text character.
4 In the **End with** box, click the appropriate character to be used to terminate the data stream to be transmitted:
   - **ETX** if you want an End-of-Text character as the stop character.
   - **CR/LF** if you want a Carriage Return/Line Feed as the stop sequence.
5 In the Data area, select the variable(s) to send or type the text to send.
6 Click **OK**

Example

In this example, serial com 2 is used to send a stream of data. The transmission begins with a start-of-text character followed by the contents of the variables [E3], [E4], [E5], [E6] and [E7]. The transmission is terminated with carriage return/line feed.



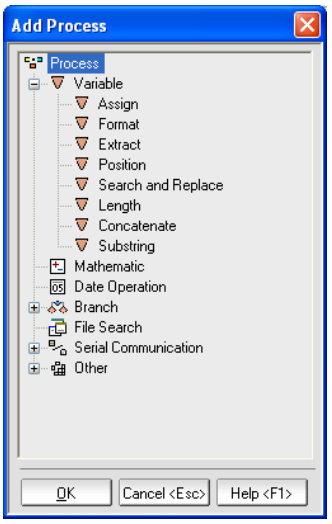
5.8. Processes on Variables

General introduction

This section describes the possible operations that you can perform on variables in your label program.

Variable Processes

1 Click the plus sign (+) beside **Variable** in the Add Process dialogue box to see the list of available processes for variables.
2 Select the Variable **process** you want to add to your program



5.8.1. Variable Assign

General introduction

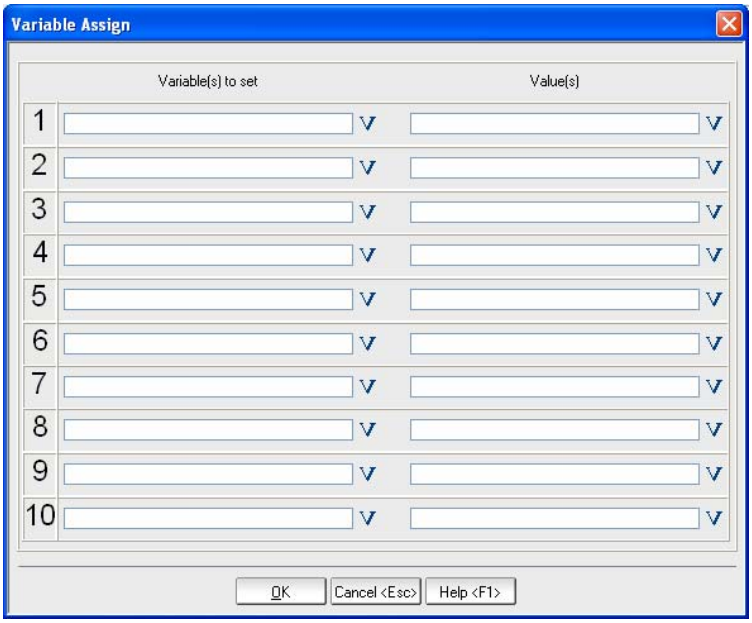
The Variable Assign command allows you to assign a value to one or more variables.

Up to 10 variables can be assigned with one single variable assignment process.

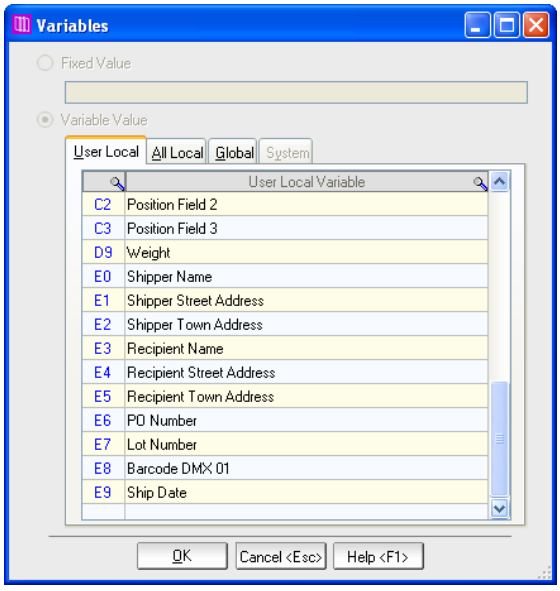
Variable Assign

To assign a value to a variable, proceed as follows:

1 Add the process **Variable Assign** to your label program.



2 In the left-hand column, click V to open the Variables dialogue box as shown here

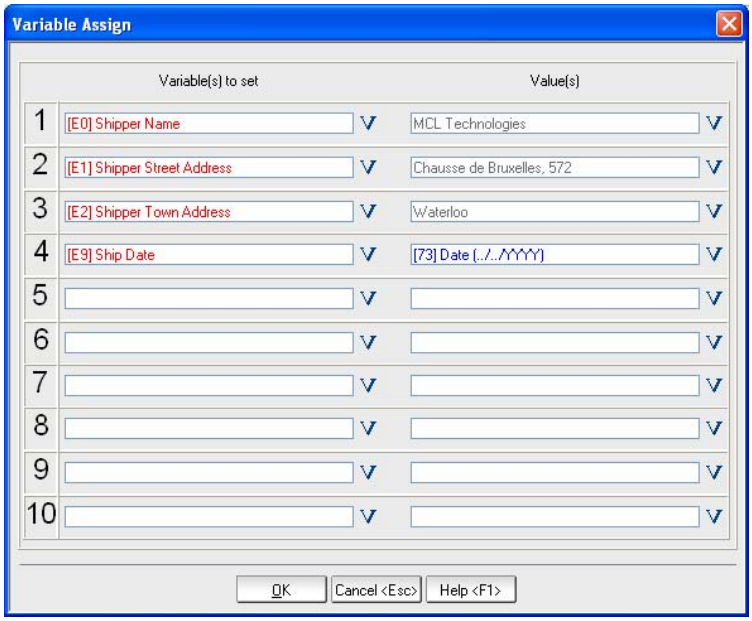


3 In the Variables dialogue box, select an existing **variable**, or
4 Click the **All Local** tab to create a new variable
5 Click OK
6 In the Value(s) list in the right-hand column of the Assign window, enter the **value** you want to assign to the corresponding variable. This value can be:
   - Any fixed value
   - Another user defined variable, or
   - A system variable
7 Click **OK**

If you change your mind about an assignment, simply right click to get a list of edit options for that field: Copy, Cut, Paste, and Delete.

Example

In this example, the first three variables [E0], [E1], and [E2] are initialized with constant values. The fourth variable, [E9] Ship Date, is initialized with the system date, System Variable [73] Date.



5.8.2. Variable Concatenate

General introduction

The Variable Concatenate command allows you to combine two or more existing variables or constants into a new variable.

Variable Concatenate

To concatenate variables, proceed as follows:

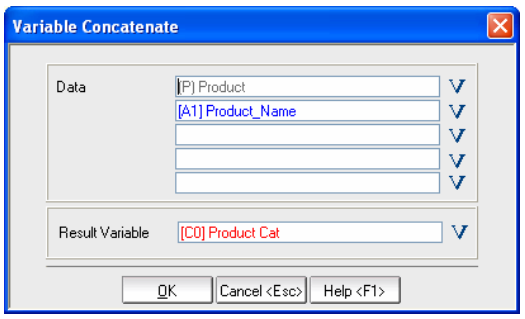
1 Add the process **Variable Concatenate** to your label program.
2 In the **Data** box, type a fixed **value** or select the variable you want to concatenate.
3 To select a variable, click beside one of the Data boxes to open the Variables dialogue box.
4 Select the desired **variable** and click OK.
5 **Repeat** steps 2 to 4 for the next variable.

When all the variables and fixed content have been identified for concatenation,

6 Click beside the **Result Variable** box.
7 Select or create the **variable** that will contain the combined data and click OK
8 Click **OK**

Example

In this example, the fixed text **(P) PRODUCT** and the contents found in variable **[A1]** are concatenated together. The result is saved in variable [C0].



5.8.3. Variable Extract

General introduction

The Variable Extract process allows you to extract one or more specified fields out of a variable. Up to 20 fields can be parsed in one single variable extraction process.

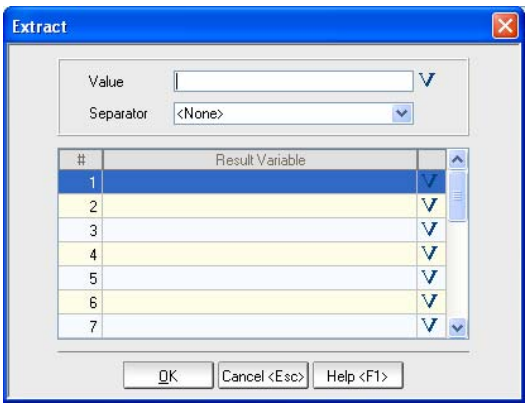
Your input variable must have a separator between fields for the Variable Extract process to work.

To extract data based upon the position of data in a variable, use the **Variable Substring** process.

Variable Extract

To extract a field from a variable, proceed as follows:

1 Add the process **Variable Extract** to your label program



2 In the **Value** box, select the **input variable** from which you want to extract fields.

3 In the **Separator** box, select the separator used between the fields in the input variable.

The left-hand column of the Result Variable table shows the number of the field to be extracted from the input variable.

4 Identify the field numbers of the fields you want to **extract** from the input variable.

5 Click V in the corresponding entry to open the Variables dialogue box.

6 Select or create the **variable** in which you want to put the extracted field contents and click OK.

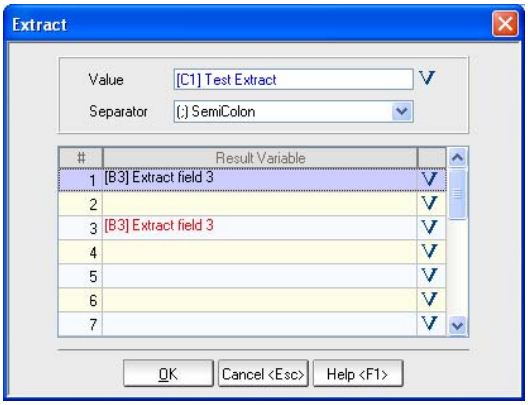
7 **Repeat** steps 4 – 6 for each field to be extracted

8 Click **OK**

If you change your mind about an assignment, simply right click the Result Variable entry to get a list of edit options for that entry: Copy, Cut, Paste, Delete, and Variables.

Example

In this example the variable [C1] contains three fields separated by semi-colons. This process extracts the first and third fields and copies their contents to variables [B1] and [B3] respectively.



5.8.4. Variable Format

General introduction

The Variable Format command allows you to reformat the data inside a variable.

Multiple options are available depending on the type of data – Character or Numeric.

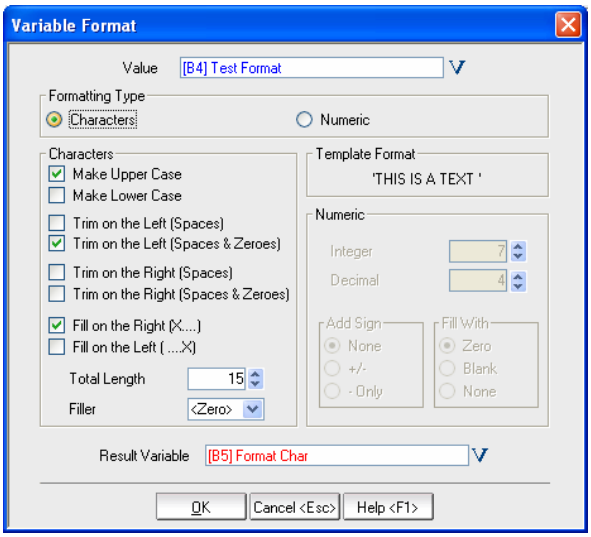
Variable Format

To reformat a variable, proceed as follows:

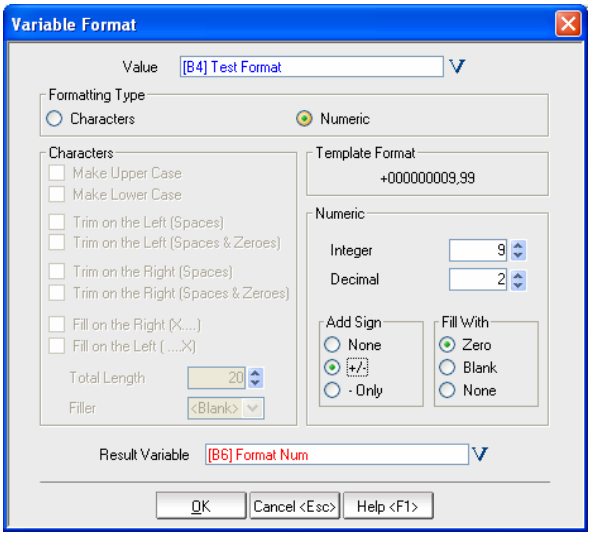
1 Add the process **Variable Format** to your label program
2 In the **Value** box, select the **input variable** you want to reformat.
3 Select whether the input variable contents are character based or numeric based.
4 Select the appropriate **reformatting options** for your variable.
5 Click V beside the Result Variable box.
6 Select or create the **variable** that will contain the reformatted contents and click OK
7 Click **OK**

Examples

In this example, the contents of variable [B4] are reformatted as follows. The contents are converted to all upper case letters, leading spaces are removed, the contents are right filled with zeros to give a total fixed variable length of 15 characters. The resulting reformatted contents are saved in variable [B5].



In this next example, the contents of variable [B4] are reformatted as follows. The contents are left filled with zeros to give a total fixed integer length of 9 digits. Two decimals points are given to the contents. If the input contents have more than 2 decimal positions, the decimal points are rounded up or down to the nearest two decimals. The resulting reformatted contents are saved in variable [B5].



If the above Variable Format processes are run with:
[B4] = 001234.569

Then,
[B5] = 1234.5690000000

And
[B6] = +000001234.57

5.8.5. Variable Length

General introduction

The Variable Length command allows you to compute the length of a variable and to place the length value in a result variable.

Variable Length

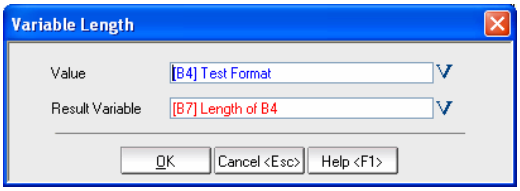
To determine the length of a variable, proceed as follows:

1 Add the process **Variable Length** to your label program
2 In the **Value** box, select the **variable** whose **length** you want to measure.
3 Click V beside the Result Variable box.
4 Select or create the **variable** to receive the length value and click OK.
5 Click **OK**

Examples

In this example, if the following Variable Length process is run with:
[B4] = 001234.569

Then,
[B7] = 000010



5.8.6. Variable Position

General introduction

The Variable Position process allows you to search for and determine the position of a specific character or string of characters inside a variable.

The process gives the position of the first character of the string inside the variable, and the position of the first character after the end of the string.

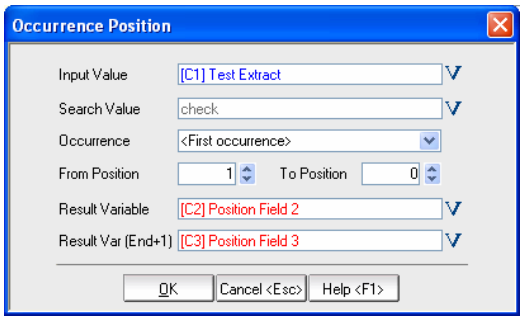
Variable Position

To search for and determine the position of a character(s) inside a variable, proceed as follows:

1 Add the process **Variable Position** to your label program
2 Select the **input** variable
3 Enter the character or **string** of characters to **search** for. This can also be a variable if the search criteria is contained in a variable
4 Select the **occurrence** of the criteria:
   - First occurrence in the input variable after the “From Position”,
   - Last occurrence in the input variable before the “To Position”,
5 Specific occurrence **between** the “From Position” and “To Positions”
6 Enter values for the **From Position** and **To Position**. These entries define the area inside the input variable where the search must start and stop. A zero for the “To Position” means until the end of the variable in the case where a variable varies in length.
7 Click V beside the **Result Variable** box.
8 Select or create the variable to receive the **position** of the **first character** of the contents for which you are searching and click OK.
9 Click V beside the Result Var [End+1] box.
10 Select or create a new variable to receive the **position+1** of the **last character** of the contents for which you are searching and click OK.
11 Click **OK**

Examples

In this example, the variable [C1] is searched for a match for the word “check”. When it is found for the first time, its starting position in variable [C1] is saved in variable [C2]. The ending position +1 of the first occurrence of “check” is saved in variable [C3].



5.8.7. Variable Search and Replace

General introduction

The Variable Search and Replace process allows you to search for a specific character or a string of characters inside a variable and if found, the string will be replaced by another character or string of characters.

The command parameters include the:

- Starting position of the search
- Selection of the "First", "Last" or a specific occurrence inside the variable.

Variable Search and Replace

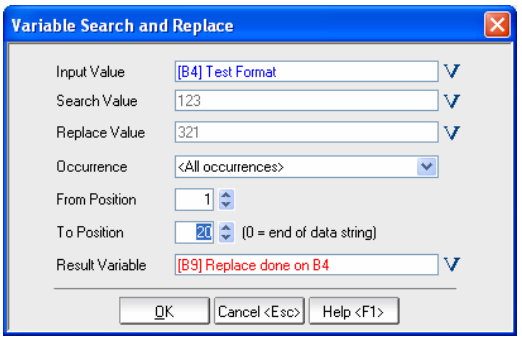
To search and replace a character or a string of characters inside a variable, proceed as follows:

1 Add the process **Variable Search and Replace** to your label program
2 In the **Input Value** box, select the input variable to be searched.
3 In the **Search Value** box, the character or **string** of characters to be used in the search. This can also be a variable if the search criteria is contained in a variable.
4 In the **Replace Value** box, type the character or **string** of characters or select a variable containing the character(s) to be used as the replacement value.
5 Select the **occurrence** of the criteria:
   - first occurrence in the input variable after the "From Position",
   - last occurrence in the input variable before the "To Position",
   - specific occurrence between the "From Position" and "To Position"
6 To search for a **specific occurrence**, simply type the occurrence number in the Occurrence box.
7 Select the **From Position** and **To Position**. These entries define the area within the input variable where the search starts and stops.
8 Click V beside the Result Variable box.
9 Select or create the variable to receive the **replaced contents** and click OK.
10 Click **OK**

Examples

In this example, if the following Variable Search and Replace process is run with:
[B4] = 001234.569

Then,
[B9] = 003214.569



5.8.8. Variable Substring

General introduction

The Variable Substring command allows you to extract from a variable a certain character or group of characters based upon their position in a variable and save the extracted character(s) into another variable.

To extract data based upon field separators in a variable, use the **Variable Extract** process.

Variable Substring

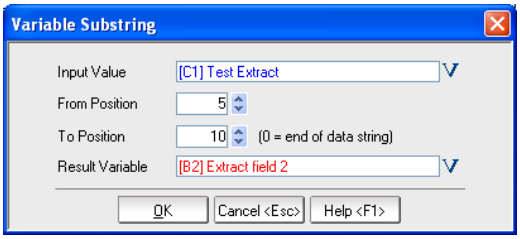
To remove characters from a variable, proceed as follows:

1 Add the process **Variable Substring** to your label program
2 In the **Input Value** box, select the variable from which you want to 'substring' a certain number of characters.
3 In the **From Position** box and the **To Position** box, type respectively the starting and ending position of the characters to be 'substringed' from the variable. Alternatively, use the up and down arrows to increment/decrement the existing values of these entries.
4 Click beside the **Result Variable** box.
5 Select or create the variable to receive the **extracted contents** and click OK.
6 Click **OK**

Note: If the 'To position' is set to "0", this means that all the characters, starting at the "From" position and up to the end of the input variable will be copied into the result variable. This is useful when the length of the input variable varies.

Examples

In this example, the variable [C1] contains three fields of data. This process extracts the second field from a known position in the variable and copies its contents into variable [B2].



6. Simulating Your Project

Overview

Chapter 6 introduction

This Chapter describes the simulator provided with 123 Print to test your project. This simulator lets you:

- Test your project routines at any time during development
- Validate a routine as soon as a specific function is developed
  - No need to wait until a project is completed to start testing
- Make sure your projects are error-free and work as desired before you download them into a production environment

This chapter describes two modes of simulation available in 123 Print:

- Simulator Mode
- Debugger Mode

Description

The Simulator is a vital tool for testing projects. It emulates your Datamax printer on your desktop PC and allows you to interactively test-run your projects in your development environment.

Simulator mode

Simulator Mode displays an image of the printer and lets you run a project to see how it will operate when loaded onto a printer.

Simulator Mode may also be used to demonstrate a Datamax printer application to potential users.

Debugger mode

In Debugger Mode, instead of showing the printer image, the simulator uses multiple windows to display different information about your project as it is executed. It displays:

- Printer screen emulation
- Local files
- User defined and System variables
- MCL code lines

Debugger Mode also lets you set break points to suspend execution of your project under simulation in order to view the state of your variables, files, etc. at the given point in your project.

When you have completed your project development and testing in Debugger Mode, run your project in Simulator Mode one last time to confirm that the project has the behavior you want.

Topics

This chapter covers the following topics:

6.1. Simulation Mode

General introduction

The Simulator allows you to test your application on the PC as if it were running on the printer.

The simulator displays an image of the printer with the printer screen and front panel buttons. The buttons can be “pushed” under simulation with a mouse click.

Using the simulator

The simulator is a valid option only if a project is already open in 123 Print.

To launch the simulator, first:

1 **Open** the **project** you want to simulate

On the 123 Print toolbar, click the Simulator icon, or on the menu bar:

2 Click **Tools**

3 Click **Simulator**

The simulator is launched with your project and an image of the target printer as shown here for text display and large screen graphical display

Text Display

Graphical Display – Large Screen

Working with the simulator

Using the Simulator, you may execute a project the same way the user will use it on the physical printer.

From the Simulator menu bar, several options are available under Execution:

- Debugger
- Simulator
- Options
- Scan Input...

4 Click **Execution**
5 Click the **desired option**

Switch from simulator to debugger

You may switch back and forth between Simulator mode and Debugger mode while simulating your project.

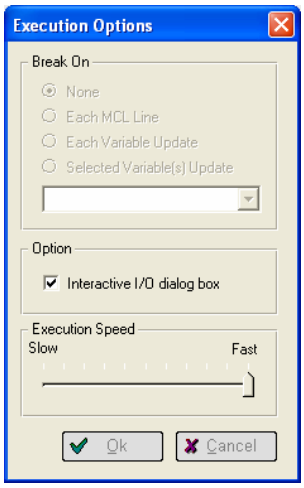
When you switch from Simulator mode to Debugger mode, the project continues to run in Debugger mode from the point at which it was stopped in Simulator mode. This allows you to run the program quickly up to the point where you want to do a more detailed test. When you have tested the specific routine in Debugger mode, you may return to Simulator mode.

Break option

Simulation Mode includes a Break option **Interactive I/O dialogue box** that allows you to simulate the success or failure of Input and Output communications in your project.

To enable the Interactive I/O dialogue box, on the MCL Code Simulator menu bar:
1 Click **Execution**
2 Click **Options**

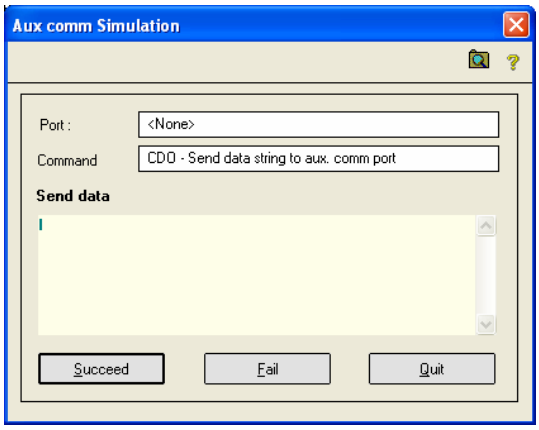
The following Execution Options dialogue box is displayed



3 Check the checkbox beside **Interactive I/O dialogue box**

With this option enabled, whenever an I/O instruction is executed in your project, the simulator will stop.

An Aux comm Simulation dialogue box is displayed showing the I/O command that is being simulated.



Simulate I/O success or failure:

4 Click **Succeed** or **Fail** respectively

This allows you to simulate successful or failed communications and observe how your project behaves in each condition. If you simulate successful communications, the simulation continues to the next step in your application. If you simulate failed communications, the application will follow the error handling path you have created in your application.

Below, for example, is the default error screen that is displayed if there is a problem printing a label

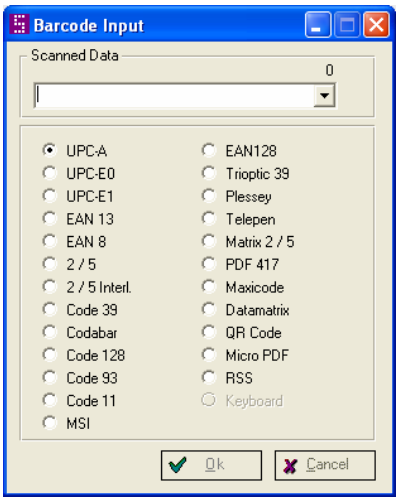
Simulating barcode input

Barcode input simulation allows you to test routines by simulating the barcode scanning inputs you want to allow in your project.

To simulate barcode scanning input, run your project under simulation. When you arrive at point where your application is waiting for an input, on your **PC** keyboard press **F12**, or on the simulator menu bar:

1 Click **Execute**
2 Click **Scan Input... F12**

A Barcode Input dialogue box is displayed as shown here



Only the valid symbologies for the given field are enabled.

3 Select the **radio button** beside the **symbology** whose input you want to simulate
4 Enter the data **input value** to be used in the simulation
5 Click **OK**

6.2. Debugger Mode

Introduction

The Debugger function enables you to do a complete and detailed test of the project. It displays:

- MCL Screen Viewer—an image of the printer screen and front panel
- MCL File Viewer—a view of the contents of the file you select for viewing
- MCL Variables Viewer—a view of your projects variables
  - You may select to view user defined Global Variables or System Variables
- MCL Code Viewer—a view of the MCL code lines your project is executing

Debugger mode also includes **Break** options not available in Simulator Mode.

You may switch at any time from Debugger Mode back to Simulator Mode testing.

Using the Debugger – Text Display Printer

The debugger is a valid option only if there is a project already open in 123 Print.

To launch the debugger, first open a project in 123 Print:

1 **Open** the **project** you want to debug

On the 123 Print toolbar, click the Simulator icon, or on the 123 Print menu bar:

2 Click **Tools**

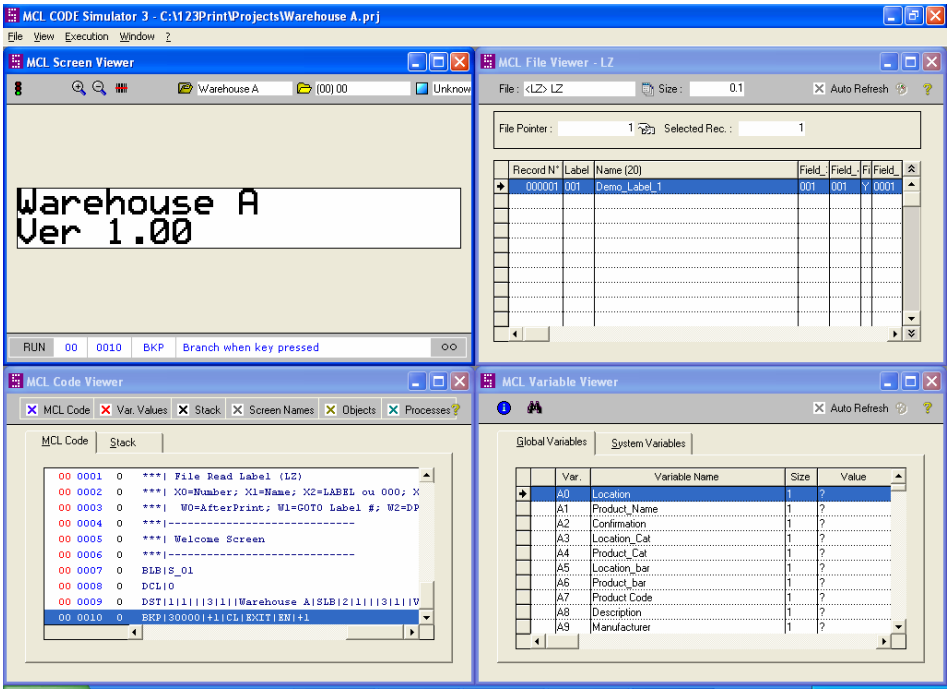
3 Click **Simulator**

On the MCL Code Simulator menu bar:

4 Click **Execution**

5 Click **Debugger**

The debugger is launched with several views of your project as show here



These views do not include an image of the printer as is shown in Simulator Mode. Only a representation of the printer screen is given in the MCL Screen Viewer window as shown above in the top left view.

When executing your program in Debugger Mode, use your PC keyboard to simulate the actions the user will enter using the printer front panel buttons.

Using the Viewer

When the Debugger is started, the following views are enabled:

- MCL Screen Viewer
- MCL File Viewer
- MCL Code Viewer
- MCL Variable Viewer

To select and deselect which views you want to see, on the MCL Code Simulator menu bar:

1 Click **Views**
2 Then click on the **view** to be hidden or displayed.

This is a toggle action. A check mark beside the view indicates that it is an active view.

Note: An optional Database Viewer is listed in the choice of views. However, this is not a valid option for 123 Print as Databases are not supported by 123 Print. If you want to use databases in your printer project, consider using MCL-Designer for Datamax printers.

MCL Screen View

In MCL Screen Viewer, you control the execution of the project in Debugger mode.

To simulate the user actions—Rev, Fwd, Ent, Esc—on the printer's front panel buttons:

1 Use the following keys, respectively, on your **PC** keyboard
   - Cursor down
   - Cursor up
   - Enter
   - Esc

For data entry required by your project,

2 Use any **valid key** on your keyboard, or
3 Simulate **barcode** scanning input as described above in Simulation Mode.

You can also initiate barcode scanning simulation in Debugger Mode by clicking on the barcode  icon on the MCL Screen Viewer tool bar. The Barcode Input dialogue box is displayed.

4 Select the **radio button** beside the **symbology** whose input you want to simulate
5 Enter the data **input value** to be used in the simulation
6 Click **OK**

MCL Code Viewer

The MCL Code Viewer allows you to follow the execution of the program at the lowest level. The MCL Code Viewer has a menu bar that provides viewing options showing various contents and details about the MCL Code lines that are being executed.

- Variable values
- Stack
- Screen names
- Objects
- Processes

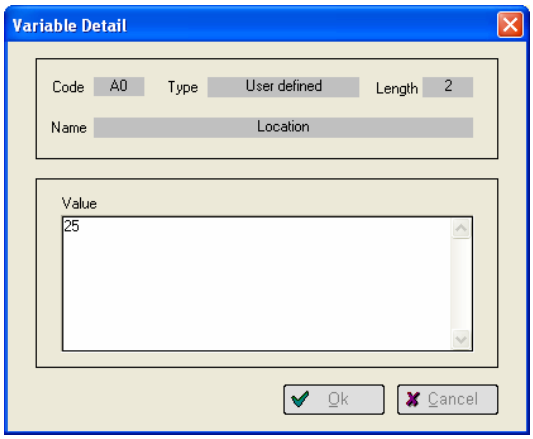
Check the **checkbox** beside each of the **MCL Code details** you want displayed during debug testing.

Variable Viewer

The Variable viewer gives you a view of your user defined variables and system variables. This viewer is updated continually by the debugger. When necessary, you may force the contents of a variable to test a given routine. To change the contents of a variable:

1 **Double click** on the variable line

The Variable Detail window is displayed as shown here



2 **Edit** the **value** of the variable to the desired value
3 Click **OK**

This may be useful to test some specific situations.

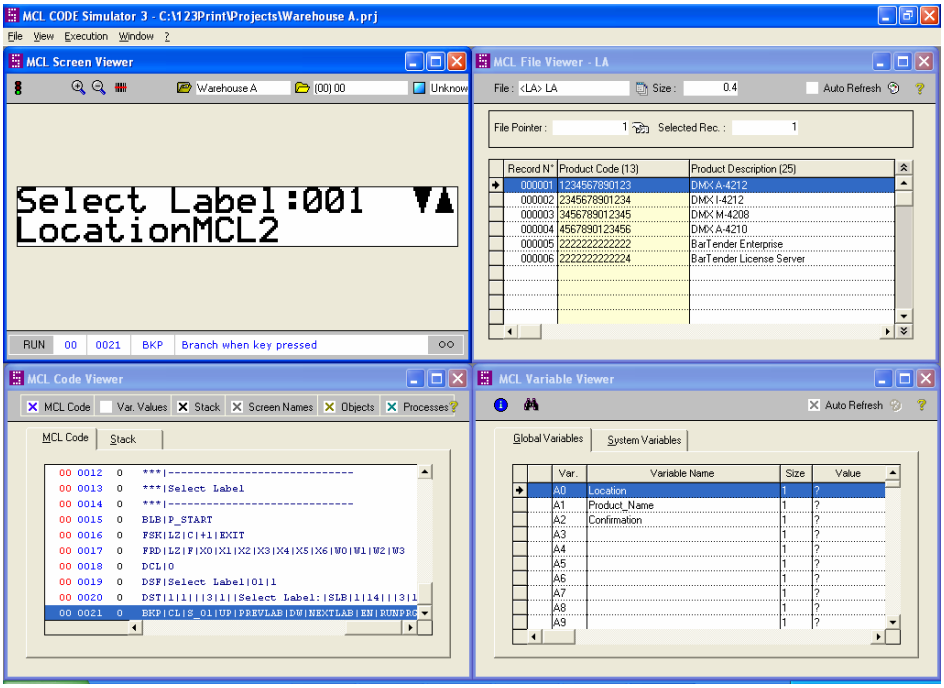
Local Files Viewer

The Local Files viewer gives a view on the local files. Only one file can be viewed at a time. To view the contents of a file:

1 Click on the files icon to view the **list** of **local files** found in your project
2 Select the **file** you want to view

The Lookup File with the reference code <LA> that was created in Section 3.4.2 – Add Lookup File from Import File is selected here

Note: <LZ> is a reserved file. It is used by 123 Print to contain your print labels.



The viewer also indicates the number of record(s) present in the file and the current pointer position in that file.

Your program may alter the contents of these files programmatically.

However, you cannot manually change the contents of the files via the File Viewer window in the Debugger.

Using the Break options

In addition to the Interactive I/O break option that allows you to simulate the success or failure of a given I/O action as described in Simulation Mode, Debugger Mode also allows you to set break points to stop project execution under additional conditions to:

- Perform step-by-step execution
- Stop automatically when the contents of any variable are modified
- Stop automatically when the contents of a specific variable are modified

These break options can be useful, for example, to test negative paths in your project and verify the error routines you have created to handle these conditions.

To set one of these break points, on the MCL Screen Viewer menu bar,

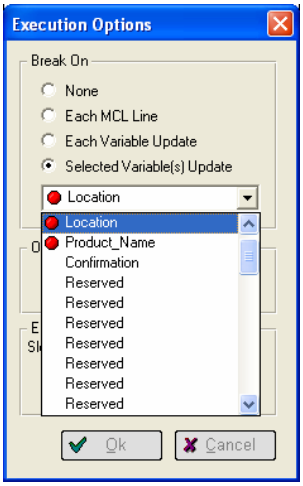
1 Click **Execute**
2 Click **Options**
3 Click the radio button beside the desired **break option**

If you choose Selected Variable(s) Update,

4 Select one or more **variables** to trigger a break in project execution

A red dot beside a variable indicates any change in its contents during execution will cause a break in project execution.

In the MCL Variable Viewer window, red dots are also displayed beside the variables that will cause breaks.



The tool bar across the top of the MCL Screen Viewer provides additional debug control icons.

The traffic light icon indicates the state of execution:

- Green = simulation is running without breaks
- Yellow = a break has occurred; application is waiting for user input
- Red = a break condition has occurred; execution is suspended

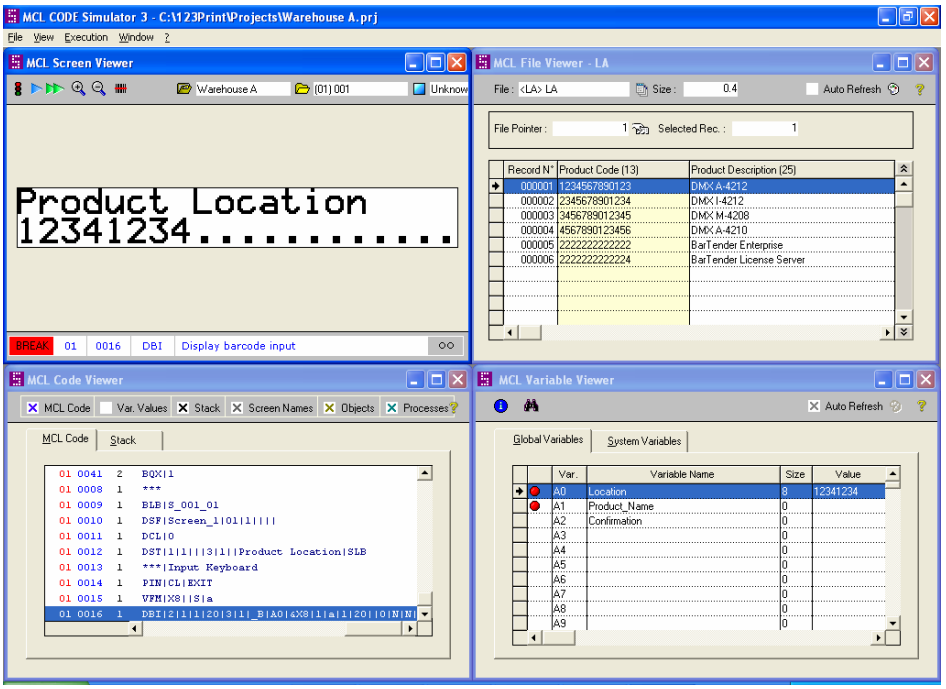
When the execution is suspended (red), the Execute Next Line icon is enabled.

5 Click this icon to **execute** the **next MCL Code line** of your project

When a break condition occurs, a status bar across the bottom of the MCL Screen Viewer gives information about the current line of code being executed.

When the execution is in a break state, the Go! icon is also enabled.

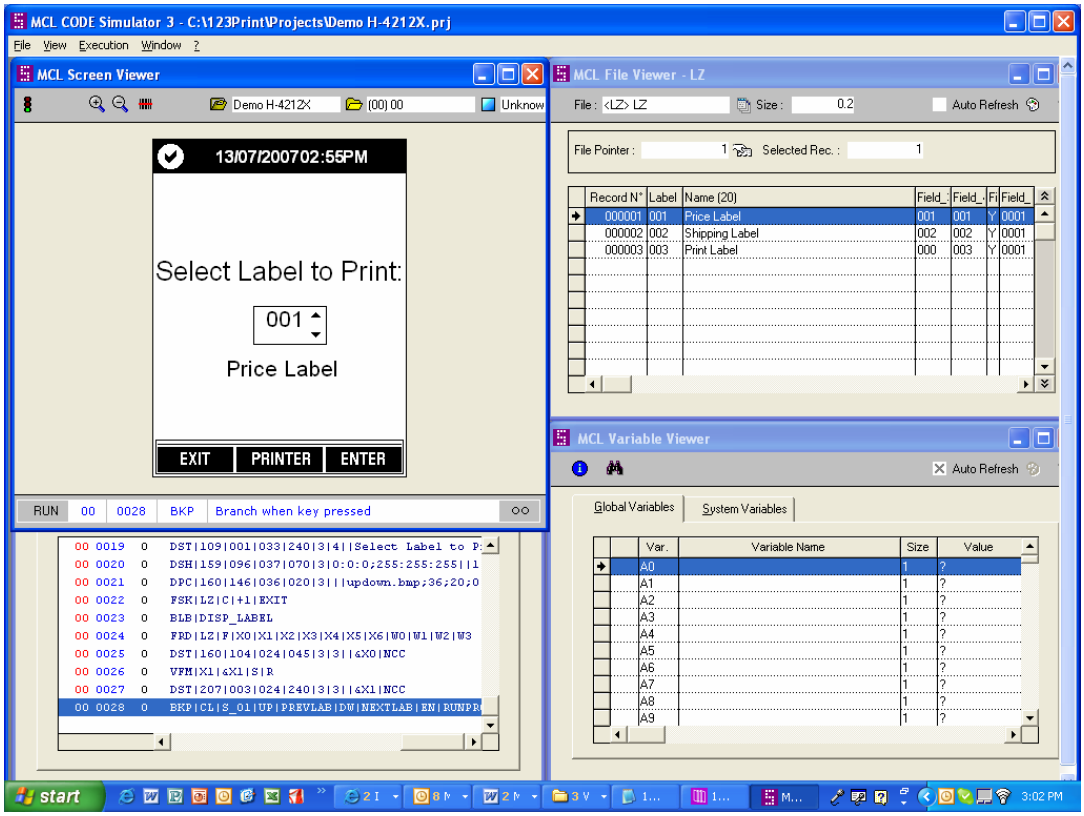
6 Click this icon to **remove** the **break points** and run the project under normal execution.



Using the Debugger – Graphical Display – Large Screen

The MCL Screen Viewer presents a view that is representative of a given printer's display type. Below shows the Debugger windows for a large graphical display printer.

The Debugger functions and Debugger Viewers for a graphical display printer are the same as those described above for a text display printer.



7. Deploying a Printer Project

Overview

Chapter 7 introduction

Typically, you would use DMXNet Manager to deploy your 123 Print Project to a network of Datamax printers.

However, to facilitate the test and initial installation of your 123 Print projects, 123 Print includes many of the printer management and control capabilities available in DMXNet Manager. The main difference is that, using DMXNet Manager, these functions can be applied to many printers at a time. By contrast, using 123 Print, these functions can only affect one printer at a time.

This chapter describes the printer management and control capabilities available in 123 Print.

Description

The printer management and control capabilities available in 123 Print allow you to connect to a print, read the printer status, execute printer control functions, load a file or application, and build and execute a script.

Topics

This chapter covers the following topics:

7.1. Connect / Disconnect Printer

General introduction

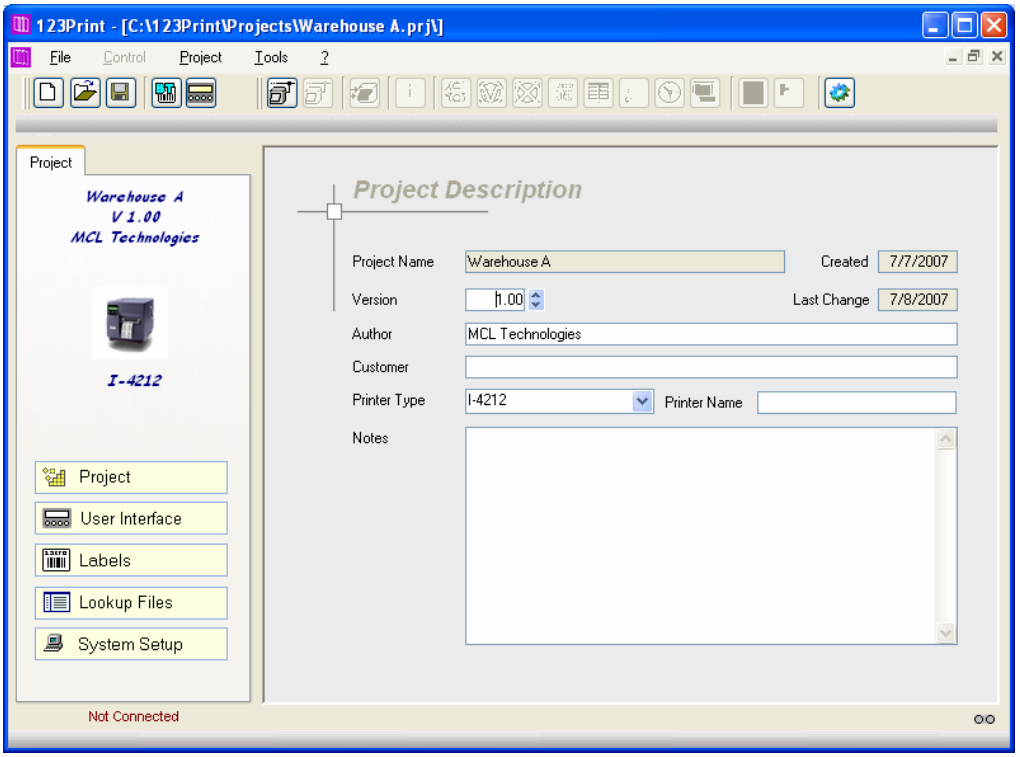
This section describes how to initiate a connection between 123 Print and a given printer.

Before you can connect a printer to 123 Print, your Datamax printer must be properly set up as described in Appendix B. Please do this before proceeding with this section.

Connect

Once 123 Print is installed and activated, you can connect to your Datamax printer at anytime. You must open a project with the valid printer type selected before initiating the connection.

Notice the connection status on the bottom left-hand corner of the display. It shows, in red letters, that the printer is **Not Connected**.



To setup the connection to your printer:

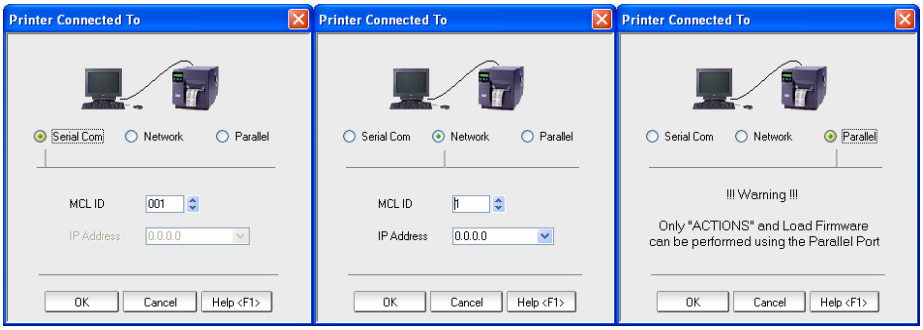
1 On the **menu bar**, click **Tools** and then select **Connect**

Alternatively:

2 On the **tool bar**, click the Connect icon

As shown below, the **Printer Connected To** dialogue box is displayed with three means of communication allowed:

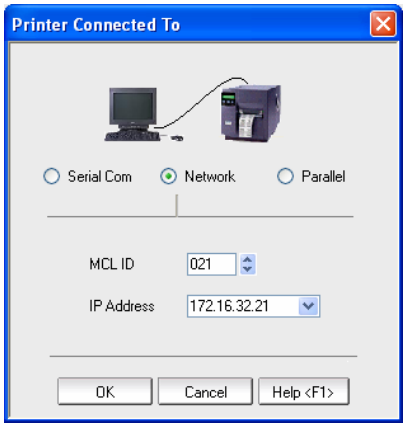
- Serial Com
- Network/Ethernet
- Parallel



Choose the interface—serial, network, or parallel cable communications—you want to use for connecting to this printer:

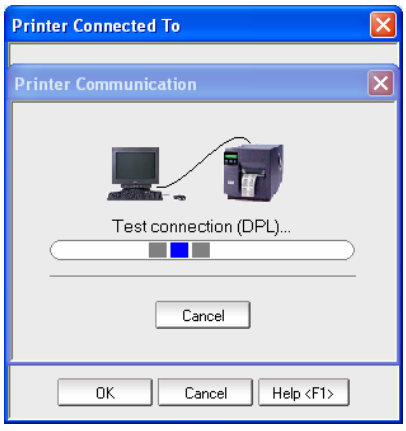
3 Select the appropriate **radio button** for your choice of communications interface

4 Fill in **MCL ID** and **IP Address** as appropriate (Please see Appendix B for more information)



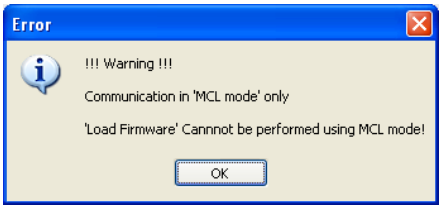
5 Click **OK**

123 Print tries to establish communications with the printer as shown here



If 123 Print has difficulties making the connection, it displays error messages like the one shown below. Correct the problem and try again.

You cannot download firmware over a serial connection. When you establish a serial connection, you receive the following warning message. This is simply a reminder that you cannot download firmware over a serial connection. You can do everything else you want over a serial connection to manage and control your printer from 123 Print.

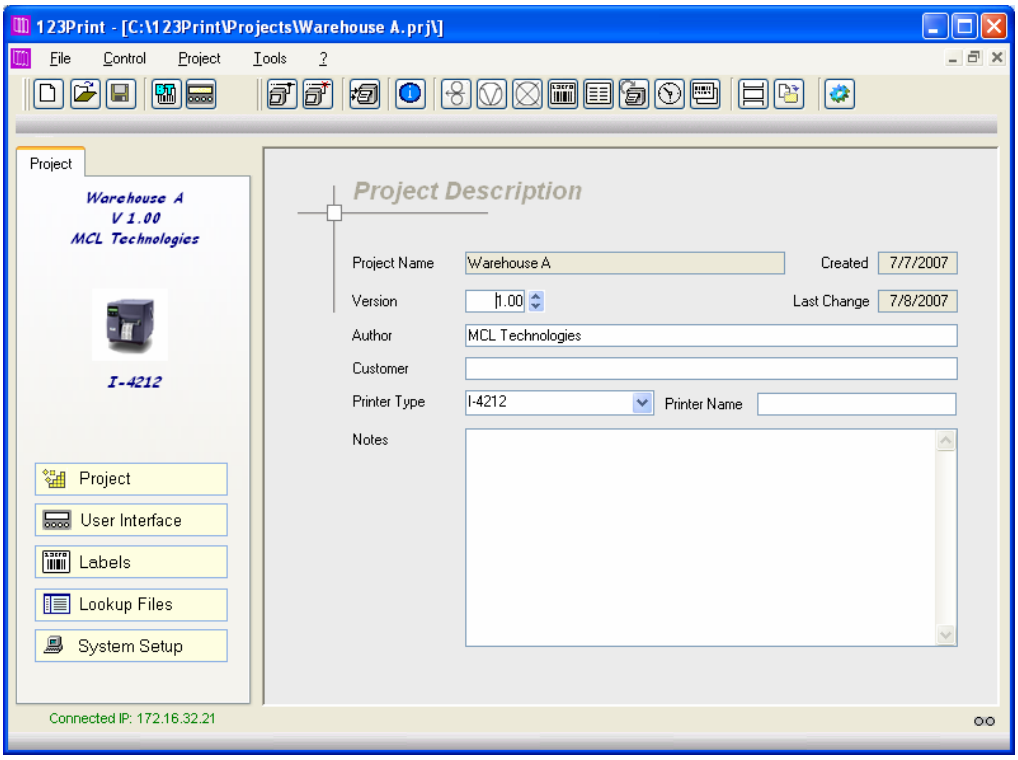


If you want to download firmware, be sure to establish a parallel or network connection with the printer.

When the printer is successfully connected, the connection status on the bottom left-hand corner of the main 123 Print window shows, in green letters, that the printer is Connected.

If the connection is over an Ethernet network, the connection status message gives the IP address of the connected printer, such as **Connected IP:172.16.32.21**.

Parallel port and serial connections result in similar connection status messages, such as **Connected LPT1** and **Connected COM1 38400** (where 38400 represents the baud rate of the serial connection).



Printer controls

Notice that a number of icons have become active with the successful connection to the printer. The functions of these icons are described in the following sections.

Disconnect

To disconnect 123 Print from your printer:

1 On the **menu bar**, click **Tools** and then select **Disconnect**

Alternatively:

2 On the **tool bar**, click the Disconnect  icon

The connection status on the bottom left-hand corner of the main 123 Print window shows, in red letters, that the printer is **Not Connected**.

7.2. Printer Status

General introduction

This section describes the printer status given by 123 Print.

The 123 Print status is a read-only status. You can not modify any of the information shown on these screens.

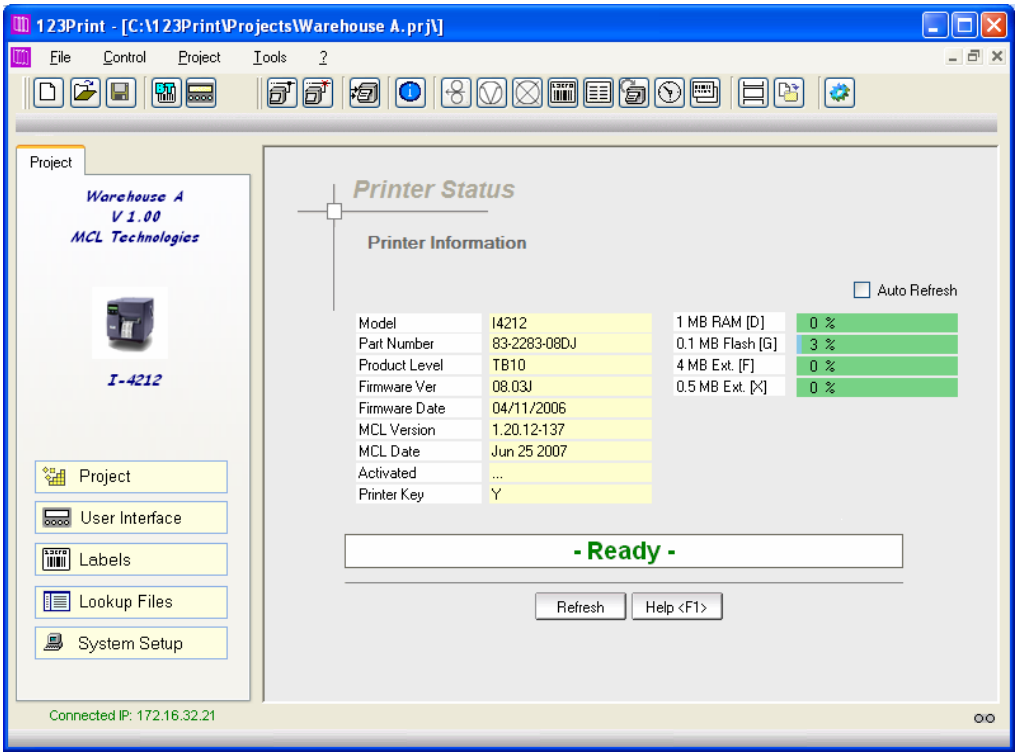
Printer Status

To see the printer's status:

1 Connect the printer to 123 Print

2 Click on the **Printer Status** icon found on 123 Print tool bar.

The printer status screen is displayed as shown here.



The printer information given means the following:

- Model
  - The Datamax printer model to which 123 Print is connected
- Part number
  - Please reference your Datamax documentation
- Product level
  - Please reference your Datamax documentation
- Firmware version
  - This is the version of your Datamax firmware
- Firmware date
  - This is the date of creation of your Datamax firmware
- MCL version
  - This is the version of the MCL-Client on your Datamax printer
- MCL date
  - This is the date of creation of the MCL-Client on your Datamax printer

- Activated
  - This indicates whether or not the MCL-Client has been activated on your Datamax printer allowing you to run applications created using 123 Print or MCL-Designer
- Printer key
  - Please reference your Datamax documentation

This Printer Status screen also displays printer **memory usage** as a percentage of memory used. In this example, 0% RAM and 3% Flash memory are in use.

To refresh the printer status displayed on this screen,

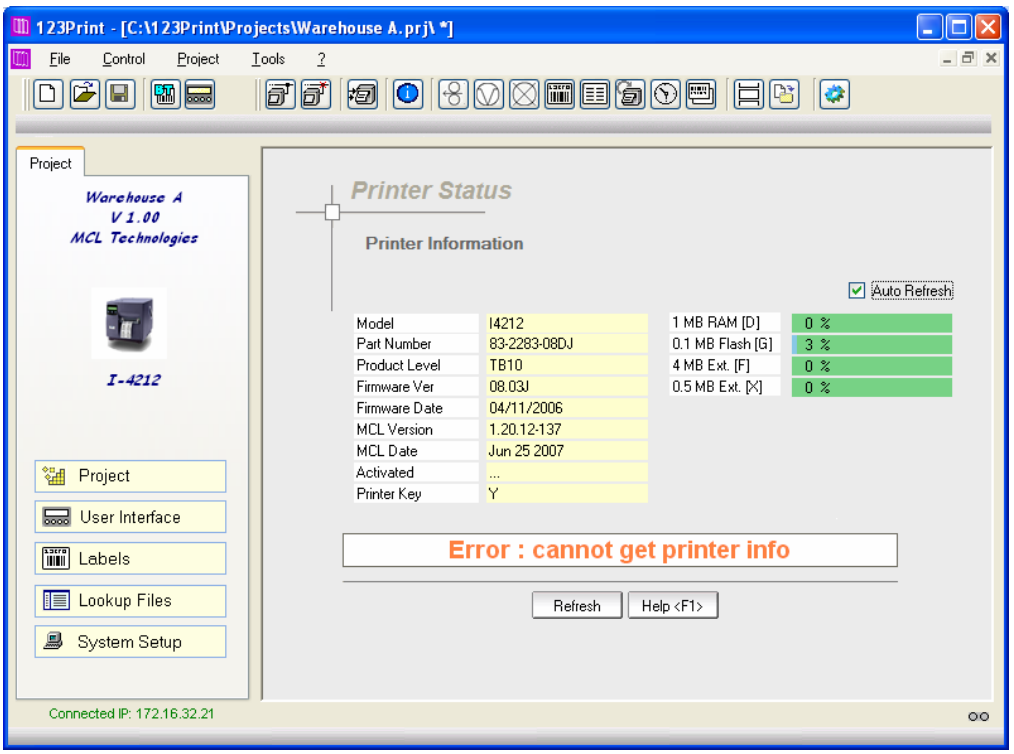
3 Click on the Refresh [Refresh] button

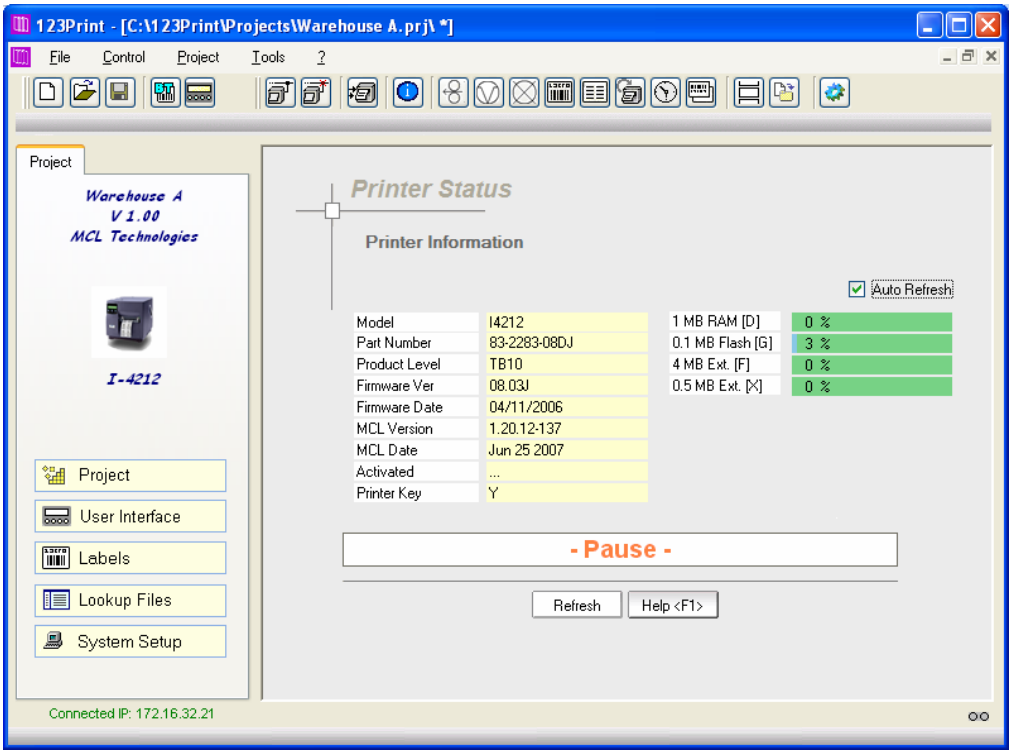
Alternatively, to automate the printer status refresh,

4 **Check** the checkbox beside **Auto Refresh**

The box above the Refresh and Help buttons indicates the printer connection status. A Ready status means 123 Print is connected to the printer. You can download files, firmware, scripts, etc.

If a communications error occurs, the status is updated to report the error as shown below. Correct the problem before attempting to download any files to the printer.





7.3. Printer Control

General introduction

123 Print allows you to easily control a printer remotely / centrally.

This section describes these controls and how they are initiated.

Printer controls

The following printer controls are available in 123 Print:

-  Feed Label
-  Pause Printer
-  Cancel Printing
-  Insert Test Label
-  Print Config Label
-  Reset Printer
-  Send Date Time
-  Reprint Last Label
-  Print Label
-  Load File / Control

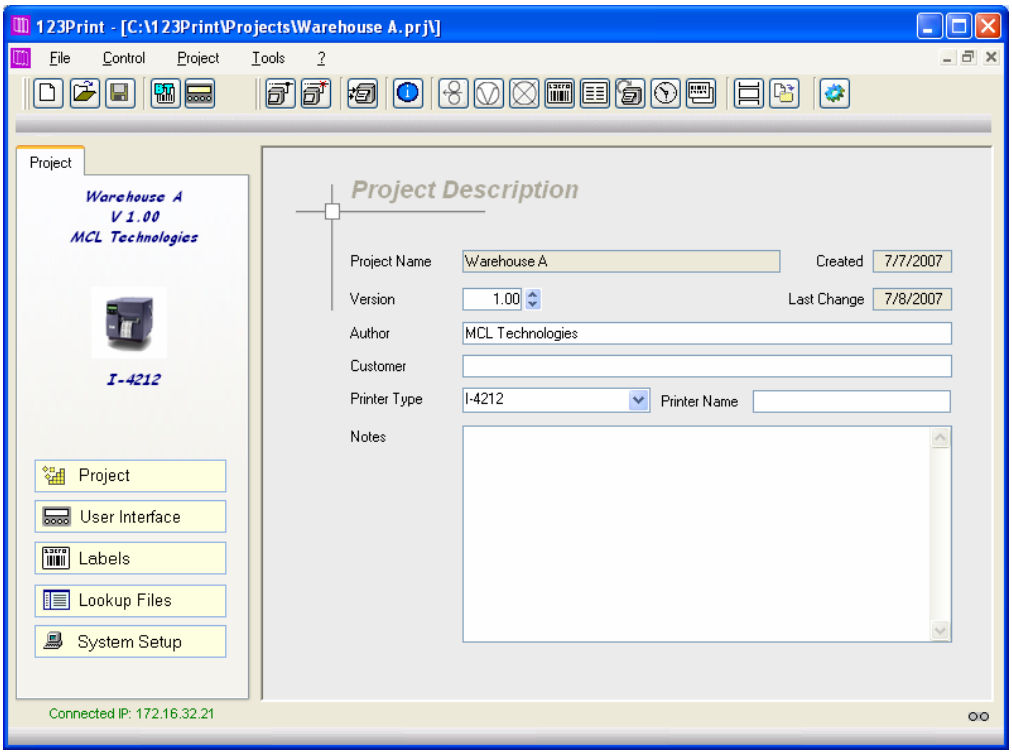
Connect to a printer to enable these controls. If no printer is connected, these controls are not active and the control icons are grayed out.

Many of these controls are also available via the physical printer's front panel or printer menu. Consequently, you may also refer to your Datamax user manual for more information about these printer controls.

To control a printer, on the 123 Print menu bar

1 **Connect to a printer as described in Section 7.1 Connect / Disconnect Printer**
2 Click **Control**
3 Click the **control** you want to execute

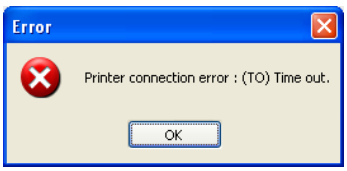
Alternatively, click the desired control on the tool bar



Control execution

If 123 Print does not require any additional information to perform the operation, it initiates the control action immediately when you select it.

If the operation is not successful, you are notified of the failure, as shown below. If this occurs, take corrective action to solve the problem and try again. Please see Section 7.1 – Connect/Disconnect Printer for more information.



Following is a more detailed description about each control and how to execute it.

Feed Label

1 Click  to perform a form feed and advance the label roll to the top of the next label

Pause Printer

This is a toggle function that operates in the same way as the PAUSE button on your printer.

1 Click  once to pause the printer

2 Click  a second time to resume printer operation from the point of interruption

Cancel Printing

This control operates in the same way as the STOP/CANCEL button on your printer.

1 Click  to abort the current print job and clear the current label format from the printer buffer

2 Click  to resume printer operation

Insert Test Label

1 Click  to print a Datamax factory defined test label

Print Config Label

1 Click  to print a Datamax factory defined configuration label

Reset Printer

1 Click  to reset the selected printer

Send Date Time

1 Click  to update the printer's time and date
This Send Date Time control allows you to synchronize the time and date of your printer at any time.

123 Print displays your server's time and date in a dialogue box as shown here

2 Click **OK** to send the server's time and date to the printer

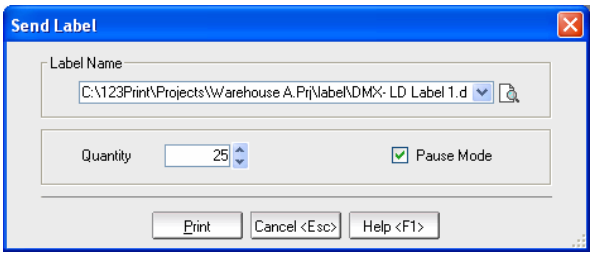
Reprint Last Label

1 Click  to reprint the last label

Print Label

1 Click  to print a label that you select

A Send Label dialogue box is displayed as show here



2 Enter the **path** and **file name** or click the browse  icon to search for the label you want to print. The label to be printed must be in *.dpl format.

3 Enter the **quantity** or use the up and down arrows  to increment or decrement the quantity of the label that you want to print

4 Check the checkbox beside **Pause Mode** if the Quantity is greater than 1 and you want to pause the printer between each label print.

Pause mode gives an operator time to peel and apply a label before the subsequent label is printed. The operator presses the PAUSE button on the printer's front panel each time he / she is ready for the next label.

5 Click Print 

Load File / Control

Load File / Control is the Printer Control that allows you to download files such as firmware, labels, and MCL projects to your Datamax printer.

Please see Section 7.4 – Load File / Control for more information.

7.4. Load File / Control

General introduction

Load File is the Printer Control (see Section 7.3 – Printer Control) that allows you to download files such as firmware, labels, and MCL projects to your Datamax printer.

This section describes what kinds of files may be loaded into the Datamax printer(s). It also discusses the file load options.

Load File / Control

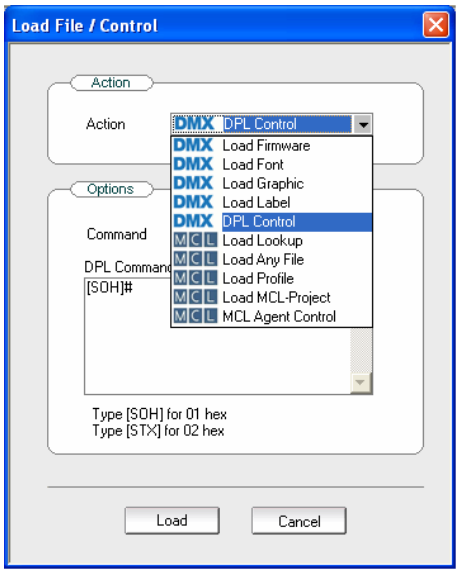
To load a file into a printer

1 Connect to the printer to be loaded

2 Click the **Load File / Control** printer control icon to load a file into the connected printer

As shown below, when you click the Load File icon, a Load File / Control dialogue box is displayed with the possible Load actions.

Each Load action also includes Load options special to the given Load type.



Note: The Actions available at any given time depend upon the physical connection to the printer and the printer Class involved. For more information see Appendix F – Connectivity / Function Matrix.

Note: In the following sections, you are frequently prompted to enter a **Target Name**. This is what the file you are downloading will be called when it is loaded on the printer.

In each case, the Target Name:

- Is allowed to have a maximum of **16 characters**
- Does not allow spaces or special characters

Note: In the following sections, you are frequently prompted to enter a **Location**. If you select <Default>, the file is stored wherever the MCL-Client is stored. This is typically in Flash memory.

Note: Different printer models have different memory module assignments and functions. If you are loading a file or applying a control to several printers at once, be sure that the given operation is suitable for all the selected printers.

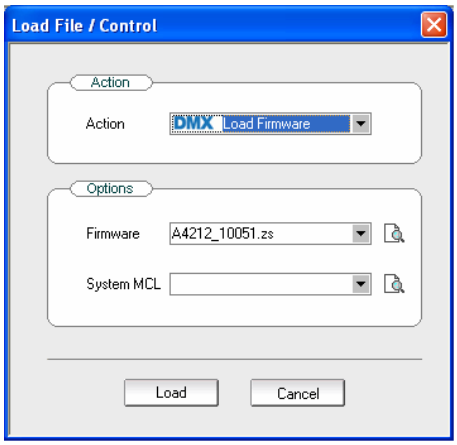
7.4.1. Load Firmware

Load firmware action

To load firmware into the printer

1 Select the **Load Firmware** action

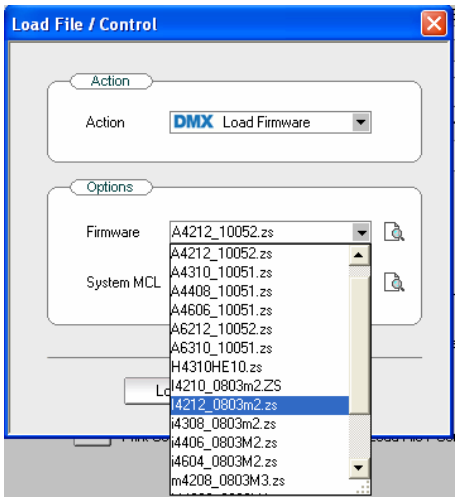
A dialogue box is displayed as shown below. This allows you to select the firmware and MCL System Menu you want to load into the printer.



Load firmware and MCL system menu options

2 Select the **firmware** you want to load into the printer, or

3 Click the browse icon to browse for the firmware you want to load

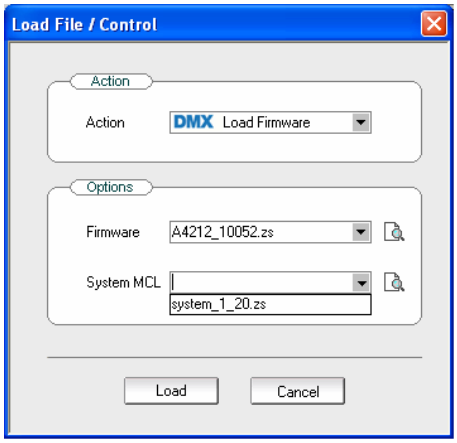


4 Next, select the **MCL System Menu** you want to load (if any) into the connected printer, or

5 Click the browse icon to browse for the MCL System Menu you want to load

Note: To assure compatibility, make sure the version of the MCL System Menu you are loading is the same as the version of the firmware you are loading.

Notice that, in this example, both the firmware and the MCL System Menu are version 1.20.



6 Click **Load**

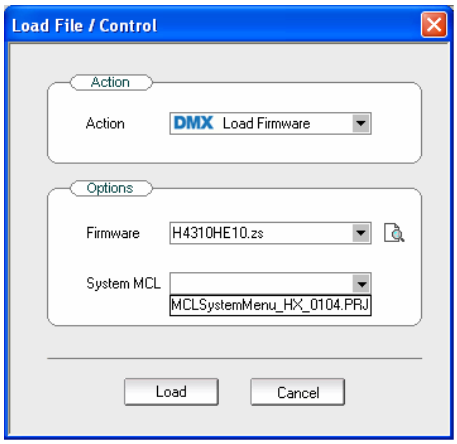
You can only load firmware over a network or parallel connection, not over a serial connection. If you attempt to load firmware over a serial connection, you will receive the following error message.

Change your connection to a parallel or network connection and try again. For more information see Appendix F – Connectivity / Function Matrix.

Note: Be aware that there are differences between the MCL System Menu files for Datamax text display printers and Datamax graphical display printers.

The MCL System Menu for text display printers are *.zs files as shown above.

Graphical display printers (such as the H-Class) have MCL System Menus that are *.prj files as shown here.



Download Process

123 Print performs the following steps for you if you load the MCL System Menu into the printer when you are loading firmware:

- Loads the selected firmware
- Reboots the printer
- Waits for the printer to boot up and restore its settings (normally about 40 seconds)
- Loads the selected MCL System Menu

Note: It is advisable to shut down any applications, such as AppleTalk, before downloading new firmware. These applications can affect the printer reboot time.

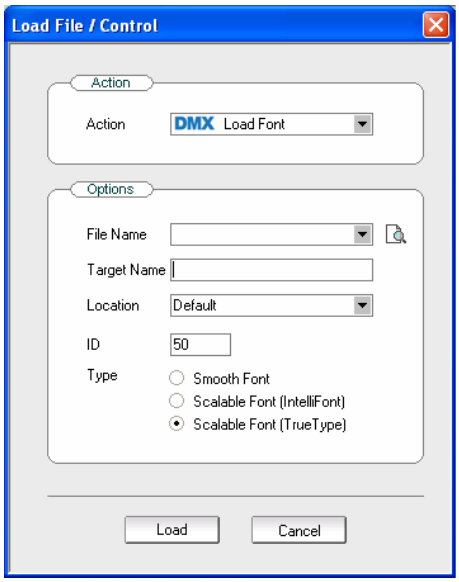
7.4.2. Load Font

Load font action

To load a font into the printer

1 Select **Load Font**

A dialogue box is displayed as shown below



Load font options

In the font options area:

2 Select the **file name** of the **font** you want to load into the printer, or

3 Click the browse icon to browse for the font you want to load

4 Enter the **Target Name**. This is the name the font file will have when loaded on the printer. You must enter a target file name. If no target name is entered, 123 Print will not load the font.

5 Select the target **Location**. This is the drive where the font file will be saved on the printer drive D, G, F, X, H, I or other depending upon your printer model.

6 Enter the **Font ID**. This is a user assigned ID for the given font. Once a Font ID has been assigned, subsequent references to this font use this ID, not the font name. Please reference your Datamax manual for more information.

7 Click the radio button beside the appropriate **font type**

8 Click **Load**

Note: Target Name and Location are not required it you are loading a Smooth font type.

Note: Valid font file types are

- *.ttf
- *.sfp
- *.sfl
- *.cdi

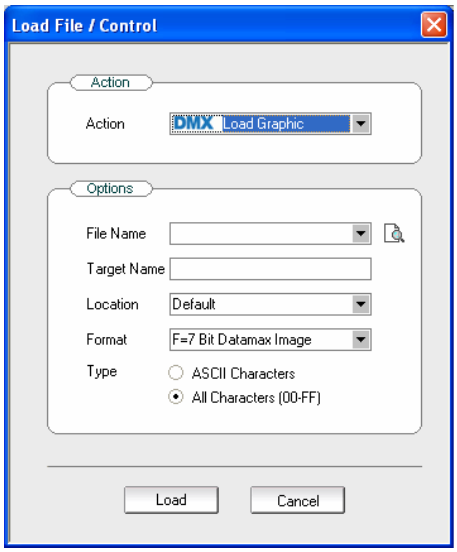
7.4.3. Load Graphic

Load graphic action

To load a graphic into the printer

1 Select **Load Graphic**

A dialogue box is displayed as shown below



Load graphic options

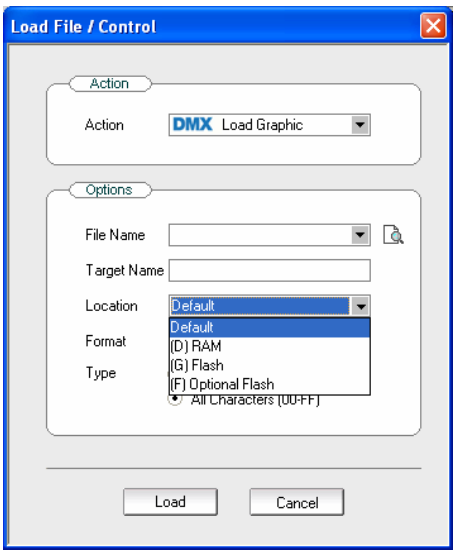
In the graphic options area:

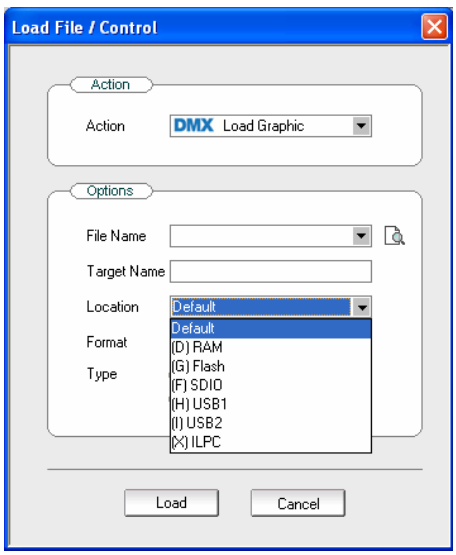
2 Select the **file name** of the **graphic** you want to load into the printer, or

3 Click the browse icon to browse for the graphic you want to load

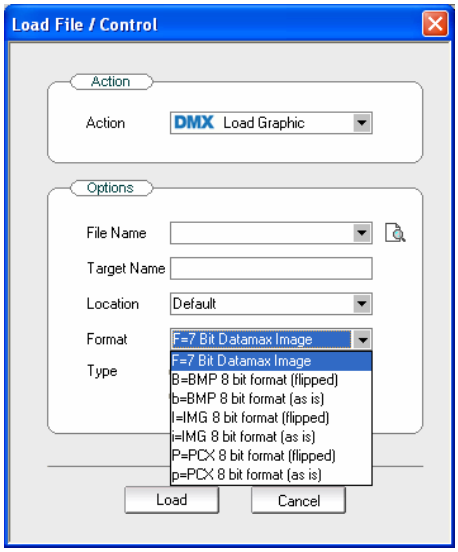
4 Enter the **Target Name**. This is the name the graphic file will have when loaded on the printer. You must enter a target file name. If no target name is entered, 123 Print will not load the graphic.

5 Select the target **Location**. This is the drive where the graphic file will be saved on the printer— drive D, G, F, X, H, I or other depending upon your printer model. Below are examples of I-Class and H-Class printers respectively.





6 Select the **format** of the graphic you want to load into the printer. Several formats (such as “flip”) are allowed. Please reference your Datamax documentation for information about these formats.



7 Select the appropriate **Type –** ASCII characters only or all characters

8 Click **Load**

Note: Graphic images must be monochrome. Valid graphic file types are:

- *.bmp
- *.pcx
- *.img
- *.f7b Datamax graphic file

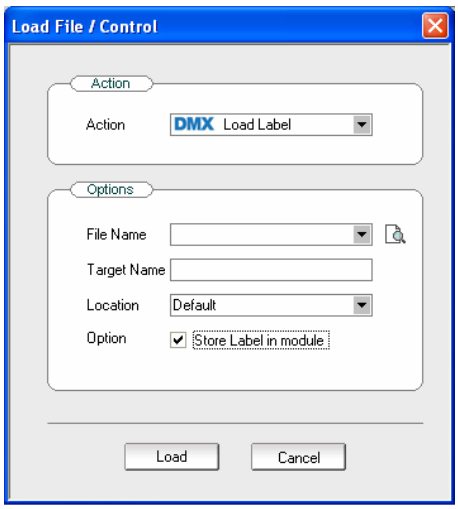
7.4.4. Load Label

Load label action

To load a label into the printer

1 Select **Load Label**

A dialogue box is displayed as shown below



Load label options

In the label options area:

2 Select the **file name** of the **label** you want to load into the printer, or

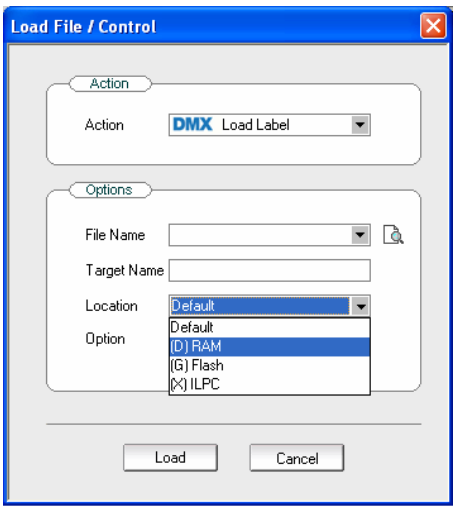
3 Click the browse icon to browse for the label you want to load

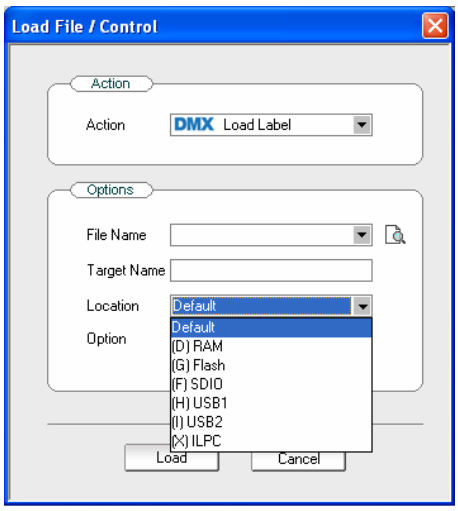
4 Enter the **Target Name**. This is the name the label file will have when loaded on the printer. You must enter a target file name. If no target name is entered, 123 Print will not load the label.

5 Select the target **Location**. This is the drive where the label file will be saved on the printer— drive D, G, F, X, H, I or other depending upon your printer model, as shown below for A-Class and H-Class printers respectively.

6 Check the checkbox beside **Store Label in module** if this is the desired option. If this option is not checked, the label is printed without being stored on the printer.

7 Click **Load**





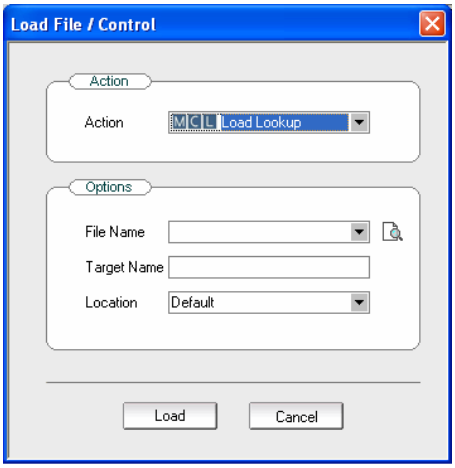
7.4.5. Load Lookup

Load lookup action

To load a lookup file into the printer

1 Select **Load Lookup**

A dialogue box is displayed as shown below



Load lookup options

In the lookup options area:

2 Select the **file name** of the **lookup** you want to load into the printer, or

3 Click the browse icon to browse for the lookup you want to load

4 Enter the **Target Name**. This is the name the lookup file will have when loaded on the printer. You must enter a target file name. If no target name is entered, 123 Print will not load the lookup file.

5 Select the target **Location**. This is the drive where the lookup file will be saved on the printer— drive D, G, F, X, H, I or other depending upon your printer model.

6 Click **Load**

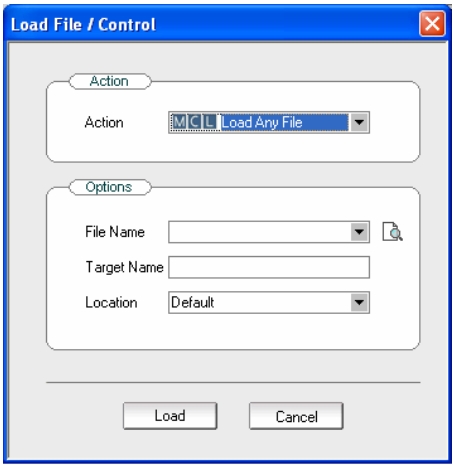
7.4.6. Load Any File

Load any file action

To load firmware into the printer

1 Select **Load Any File**

A dialogue box is displayed as shown below



Load any file options

In the load any file options area:

2 Select the **file name** of the file you want to load into the printer, or

3 Click the browse icon to browse for the file you want to load

4 Enter the **Target Name**. This is the name the file will have when loaded on the printer. You must enter a target file name. If no target name is entered, 123 Print will not load the file.

5 Select the target **Location**. This is the drive where the file will be saved on the printer— drive D, G F, X, H, I or other depending upon your printer model.

6 Click **Load**

7.4.7. Load Profile

Load profile action

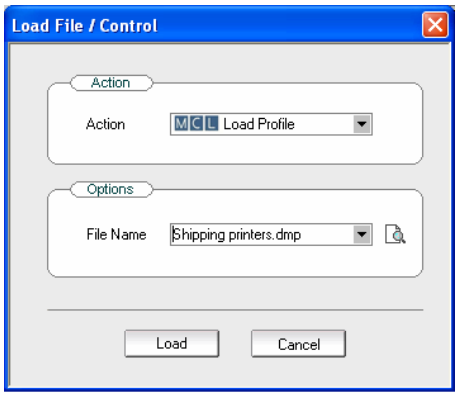
In the software product **DMXNet Manager**, MCL Technologies has implemented a concept called profiles. All the configuration settings for a given printer can be saved in a profile. DMXNet Manager **profiles** let you recover a given printer's configuration or load the same printer settings into other printers to configure them identically. 123 Print can load a profile created using DMXNet Manager.

Profiles are of the type *.dmp. If you used the default paths when installing DMXNet Manager, your profiles are saved in:

C:\DMXNetMan\Profile

1 On the **tool bar**, click the Load File / Control icon
2 Select **Load Profile**

A Load Profile dialogue box appears as shown here



Load profile options

In the profile options area:

3 Select the **file name** of the **profile** you want to load into the printer, or
4 Click the browse icon to browse for the profile you want to load
5 Click **Load**

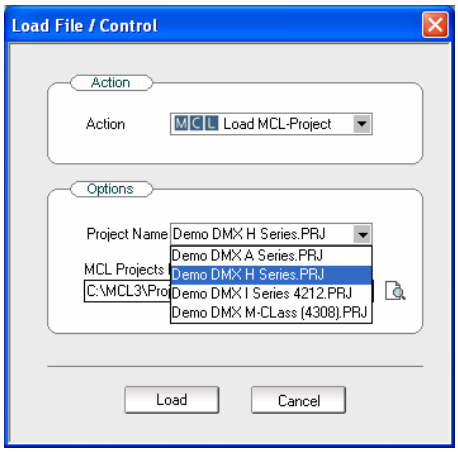
7.4.8. Load MCL-Project

Load MCL project action

123 Print and MCL-Designer for Datamax Printers allow you to create applications that run on Datamax printers. To load a project into the printer:

1 Select **Load MCL-Project**

A Load MCL-Project dialogue box appears as shown here



Load project options

In the project options area:

2 Click the browse icon in the **MCL Projects Path** to choose the source directory of the project you want to load

3 Select the **project name** of the project you want to load into the printer

4 Click **Load**

7.4.9. Load DPL Control

DPL Control action

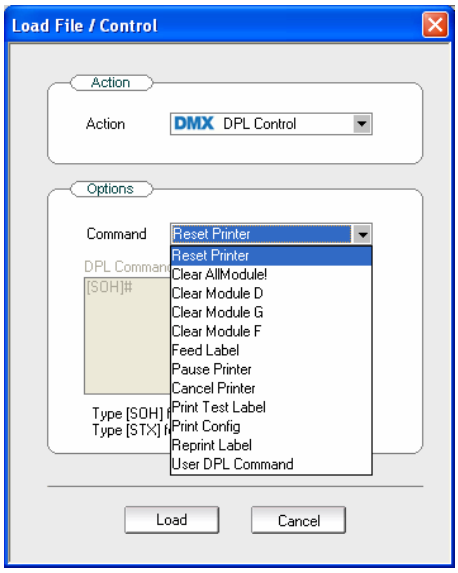
To load a DPL Control into the selected printer:

1 Put the printer into DPL Mode

Note: DPL Control commands should be sent with the printer in DPL Mode to be sure the printer's DPL engine receives the command properly for control handling and execution.

2 In 123 Print, select the **DPL Control** action

A dialogue box is displayed giving DPL Command load options as shown here



DPL command options

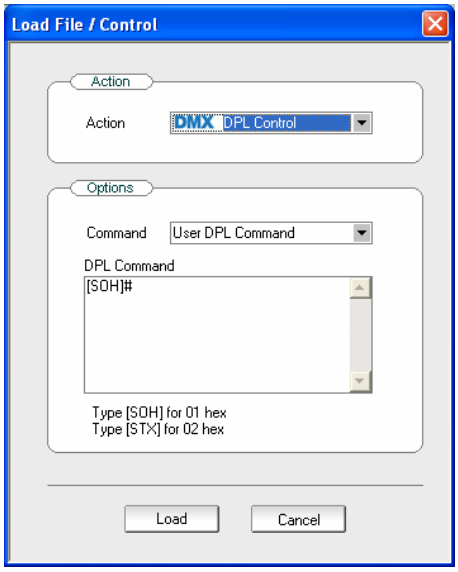
123 Print offers a list of preset DPL Commands for you to choose from. These are the most commonly used DPL commands. Note: These preset actions are the same commands as provided by DMX Loader.

3 Select the predefined **DPL command** you want to load in the printer

Alternatively, if you want to execute a DPL command that is not provided in the preset DPL command list:

4 Choose the **User DPL Command** option

A dialogue box is displayed as shown below. This allows you to write your own DPL command to be sent to the printer.



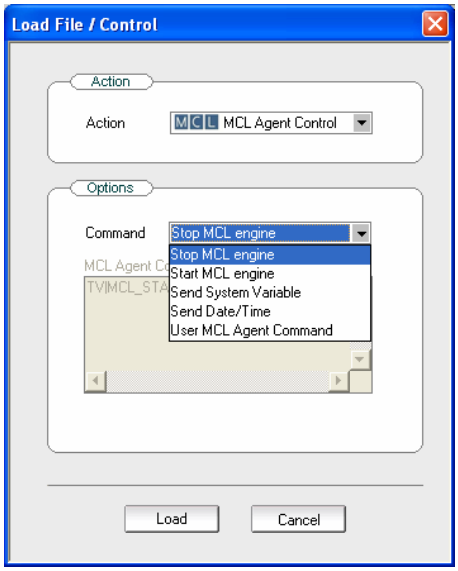
5 In the DPL Command box provided, enter the **DPL command** you want to execute
6 Click **Load**

7.4.10. MCL Agent Control

MCL Agent Control

The MCL-Client running on the Datamax printer includes a component called MCL Agent. This is a program that runs in the background for remote printer management using DMXNet Manager.

MCL Agent can be thought of as the printer-side component of DMXNet Manager.



Just as you send DPL commands (Section 3.4.9 – Load DPL Control) to Datamax printers for the Datamax engine to execute, this dialogue box lets you send MCL commands to the printer for the MCL Agent to execute.

DMXNet Manager offers a list of preset MCL Commands for you to choose from. These are the most commonly used MCL commands used in scripts. However, they are also available here for direct MCL control.

1 Select the predefined **MCL Agent command** you want to send to the printer.

When would you use these commands?

"Stop MCL engine" is useful if you want to stop the MCL engine before you download a new project or new firmware to the printer. You may also want to stop the MCL engine if, for example, your MCL application is running in an infinite loop on the printer.

You would use "Start MCL engine" after having stopped the engine to, for example, download a new project.

If the action you want to perform is not provided as a preset command, you may want to execute your own MCL Agent command.

2 Choose the **User MCL Agent Command** option

A dialogue box is displayed in which you can write your own MCL Agent command to be sent to the printer.

Note: This feature is generally expected to be used by advanced users only.

7.5. Load Project

General introduction

This section describes how to download your currently active project into your printer using the Load Project function.

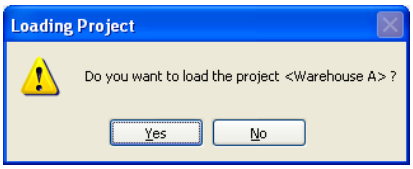
For quick project load into your printer during application development, 123 Print provides a Load Project function. Using this function, 123 Print loads the open project onto the connected printer. You must have a project open for this function to work. On the 123 Print main window menu bar:

1 Click **File**
2 Click **Open**
3 Select the **project** that is to be loaded into the printer

On the 123 Print main window **toolbar** click the Load Project icon, or on the menu bar:

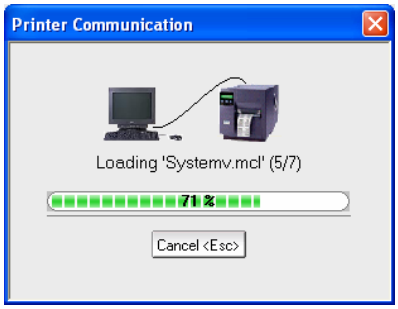
4 Click **Tools**
5 Click **Load Project**

You are prompted to confirm that you want to load the project as shown here

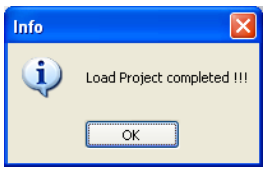


6 Click **Yes**

A dialogue box displays the progression status of the loading process as shown here



An Info dialogue box indicates that the download completed successfully.



7.6. Scripts

General introduction

Section 7.4 – Load File / Control describes the various kinds of files that may be loaded into a Datamax printer. The File Load allows you to load just one file at a time into the connected printer.

By contrast, scripting allows you to identify several files to be automatically loaded into the connected printer.

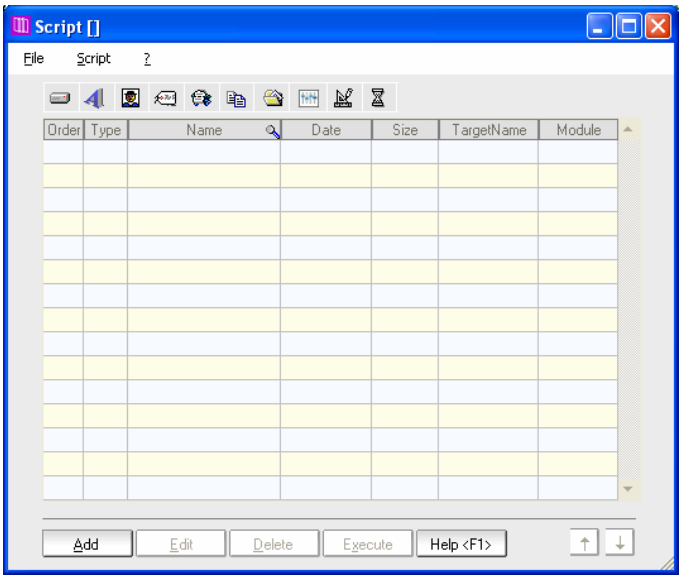
This section discusses how to create and use scripts to manage and control your Datamax printer.

Create script

To create a script, click on the Script icon on the project **tool bar** or on the 123 Print **menu bar**:

1 Click **Tools**
2 Click **Script**

The Script utility is displayed as shown here



On the Script menu bar,

3 Click **File**
4 Click **New**

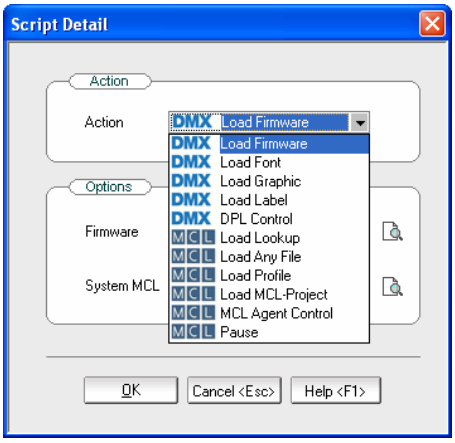
7.6.1. Script Actions

Script actions

Now that you have created a new, blank script, start adding the actions you want this script to execute. On the Script menu bar,

1 Click **Script**
2 Click **Add**
3 Choose the **action** you want to perform first

A Script Detail dialogue box is displayed as shown here



With the exception of a new action to Pause the printer, the choice of actions available for scripting are the same as those described in Section 7.4 – Load File / Control.

The possible script actions are also available as icons on the Script tool bar as follows:

- Add firmware
- Add font
- Add graphic
- Add label
- Add lookup file
- Add any file
- Add MCL-Project
- Add profile
- Add Other Controls
  - This icon takes you to a dialogue box that includes all possible actions, including DPL Control. The idea is to give access, from one icon, to all the functions provided in 123 Print that are also available in DMX Loader.
- Add Pause

4 Click any of these action **icons** to display the related Script Detail dialogue box
5 Edit the **Script Detail** dialogue with settings for this action as described in Section 7.4 – Load File / Control
6 Click **OK**

The **Script Detail** action dialogue boxes are the same as the **Load File / Control** action dialogue boxes with one main difference. When you have completed editing the Load File / Control dialogue box as described in Section 7.4, you click Load to perform the action immediately on the connected printer.

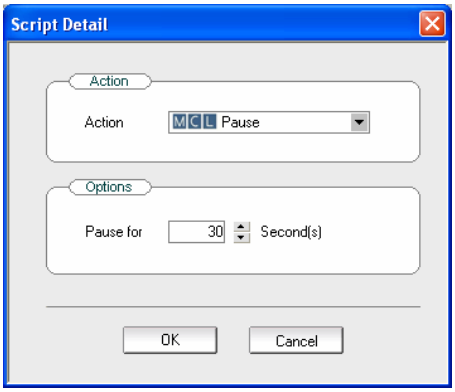
In Scripting, when you have completed editing the Script Detail dialogue box, you click OK to add the action to the Script. You continue adding all the actions you want to the script. You save the script to be executed at a later time.

Pause

The Pause action is a Scripting action that is not available as a Load File / Control option in Section 7.4. Use the Pause as necessary between file loads in your script. For example, if you load a large file into the printer, you might want to delay a few seconds to give the printer time to save the file to memory before proceeding to the next load action in the script.

To insert a pause in your Script, on the **Script tool bar** click the  icon, or on the **Script menu bar**:
1 Click **Script**
2 Click **Add**
3 Select the **Pause** action

A Pause action dialogue box is displayed as shown here



Pause options

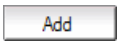
4 Edit the **Pause for** data entry field with the desired period of delay or use the up and down arrows  beside the data entry field to increment or decrement the value respectively. The period of delay is measured in seconds.
5 Click **OK**

7.6.2. Script Building

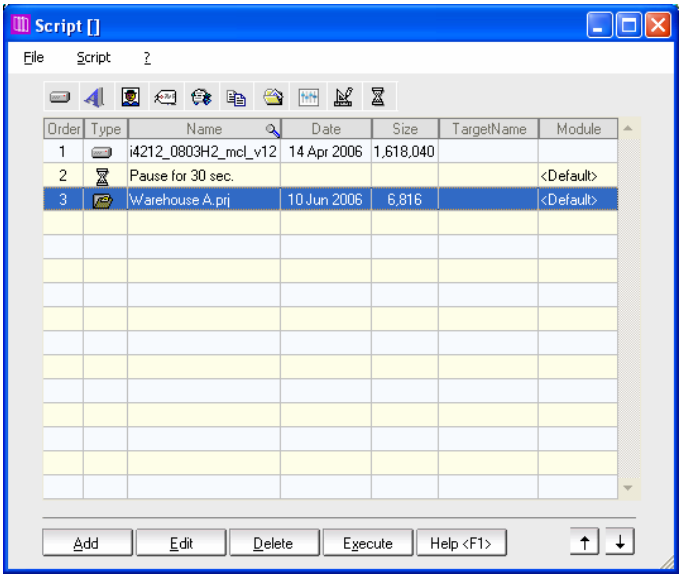
Script add action

To build your script, continuing adding actions as required.

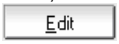
On the Script menu bar,
1 Click **Script**
2 Click **Add**
3 Choose the **action** you want to perform first

Alternatively, click the Add  button found at the bottom of the Script utility screen.

Here is an example of a simple script that loads new firmware, a new MCL System Menu, delays for 30 seconds and then loads an MCL-Project. The MCL System Menu does not show in the script; it is included in the Load Firmware action options.



Script edit action

The script you create may be modified at any time.
1 Select the **Script action** you want to edit
2 **Double click** on the Script action, or
3 On the **menu bar**, click **Script**, then click **Edit**, or
4 Click the Edit  button found at the bottom of the Script utility screen
5 Edit the **Script Detail** dialogue box that is displayed—change the action or the action options
6 Click **Ok**

Script action order

You may re-order the actions of your script at any time.

To move an action up or down:
1 Select the **action** to be moved
2 Click the  buttons found on the bottom of the Script utility screen to move an action up or down the script respectively

Script delete action

In addition to editing actions in the script, you may also delete actions you have previously inserted in the script.

1 Select the **action** you want to delete

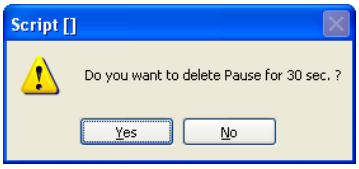
On the Script menu bar:

2 Click **Script**

3 Click **Delete**

Alternatively, click the Delete  button found at the bottom of the Script utility screen.

As an example, if we delete the Pause we inserted in our new script, a confirmation dialogue box is displayed as shown below.



4 Click **Yes** to delete the selected action from the script

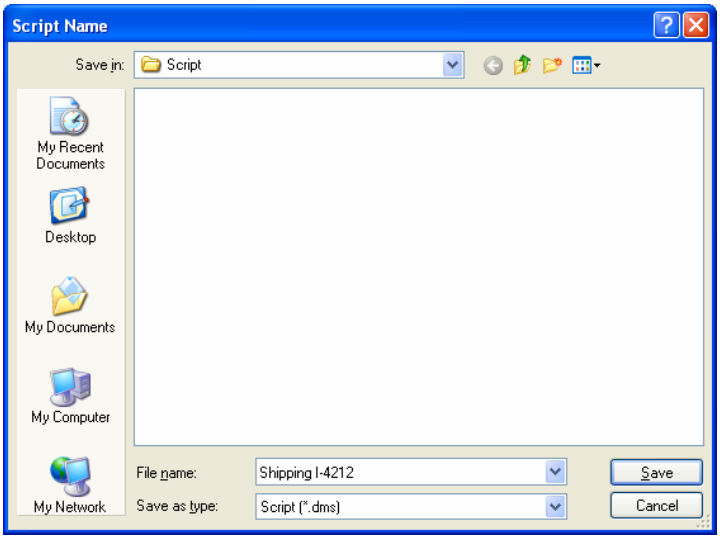
7.6.3. Script Save

Script save

Save the script you have created. On the **Script menu bar**,

1 Click **File**
2 Click **Save**, or
3 Click **Save as**...

A dialogue box is displayed as shown here



4 Enter a **File name** for your script
5 Click **Save**

Scripts are of the type *.dms. If you used the default paths when installing 123 Print, your scripts are saved in:

C:\123Print\Script

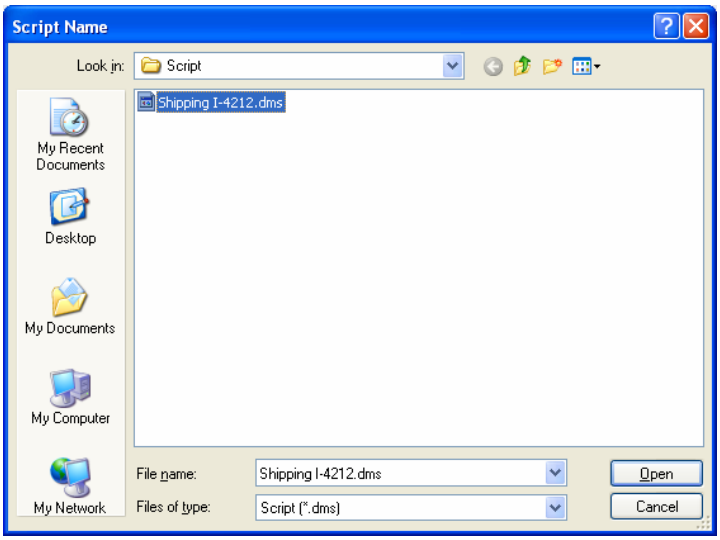
7.6.4. Script Open

Script open

Once saved, the Script you created may be opened and modified again at any time. On the **Script menu bar**:

1 Click **File**
2 Click **Open**

A dialogue box is displayed as shown here



3 Select the **script** you want to open
4 Click **Open**

7.6.5. Script Execution

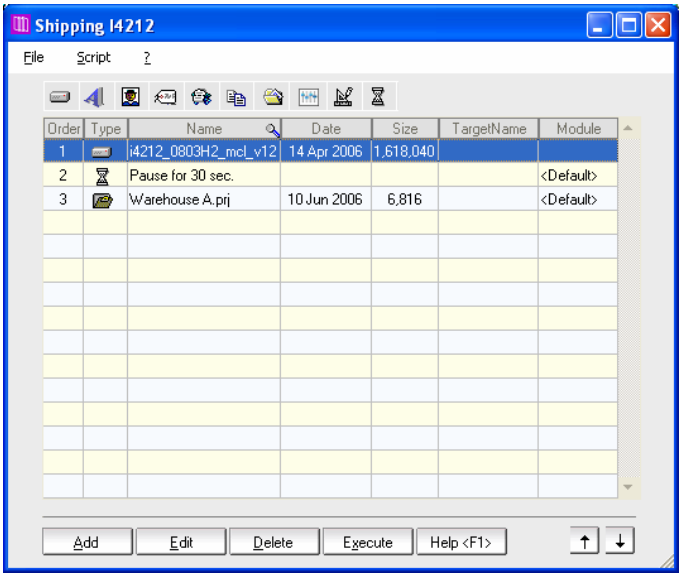
Script execution

Once a script is built and saved, it may be executed. Executing a script means that the script actions are sent to the connected printer.

To execute a script, on the **123 Print tool bar**

1 Click the script icon

The Script utility screen is displayed. The script that was last open when you last quit the script utility is automatically opened again for you.

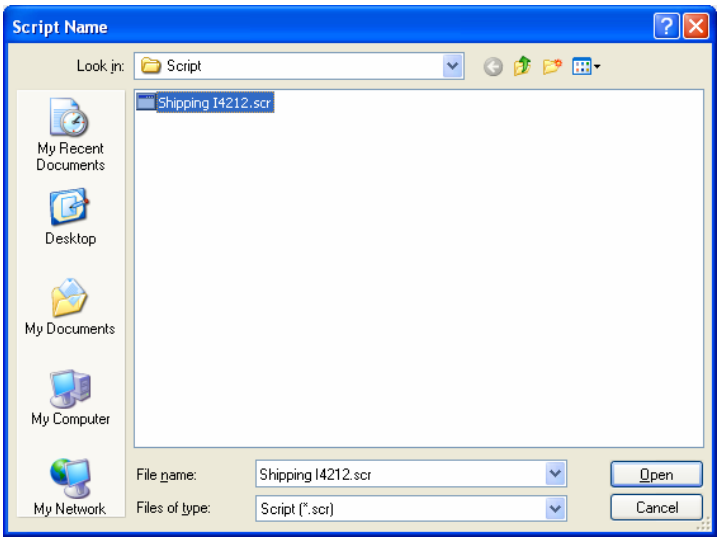


If you want to open a different script than the one opened by default,

2 Click **File**

3 Click **Open**

A script selection dialogue box is displayed as shown here

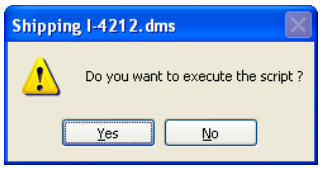


4 Select the **script** you want to execute

5 Click **Open**

6 Click the Execute  button found at the bottom of the Script utility screen.

You are prompted to confirm that you want to execute the script

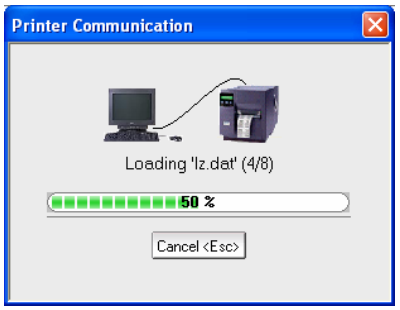


7 Click **Yes**

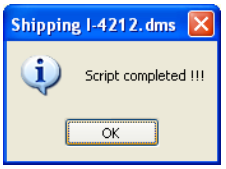
Script execution progress

When the script is being executed, various dialogue boxes are displayed indicating the progress of the script execution.

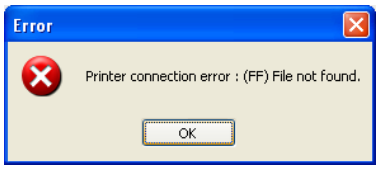
Below are the progress dialogue boxes for a delay count down and a Lookup File transfer respectively for the example script. The Lookup File **lz.dat** being loaded in this example is the 4th of 8 files being downloaded with the project load.



A status dialogue box indicates that the script executed successfully.



If your script points to a file that does not exist, the script action will fail and give the following error



Appendix A – Sample License Certificate

License Certificate

When you place your order for 123 Print, you will receive an email with a License Certificate for the product you ordered. Below is a sample License Certificate.

The information highlighted in yellow below is the information you need for your license activation.

Be sure to save a copy of your License Certificate in a safe place.

```
-----Original Message-----
From: meos1.license@mcl-certificate.com [mailto:meos1.license@mcl-
certificate.com]
Sent: Thursday, June 15, 2006 5:56 PM
To: marketing@mcl-collection.com
Subject: MCL / Certificate / MCL Technologies-T0606150001 / SMM-24
601 1010-1 / 1 / 1-2-3 Print

MCL-Collection Certificate

This MCL-Collection Certificate is e-mailed in response to your
order.

A)
To download the software, please access the http://mcl.mcl-
collection.com website, go to Section Download.

B)
To automatically activate (On-Line Mode) your purchased MCL-
Collection Software, follow instructions displayed at install. To
manually activate (Off-Line Mode) your purchased MCL-Collection
Software, access the http://www.MCL-License.com website.

An easy activation process will require the License Number(s) and
Password(s) provided hereunder for each individual Item.

Activation is required and ensures that each MCL-Collection product
is not installed on more than one device.

Software Key – machine dependent activation:
-------------------------------------------
ONCE THE MCL-COLLECTION SOFTWARE IS ACTIVATED ON A DEVICE IT CANNOT
BE UN-INSTALLED FROM THAT DEVICE TO BE RE-INSTALLED ON A DIFFERENT
ONE.


Hardware Key – machine independent activation:
---------------------------------------------
If you want to transfer your license from one PC to another one, plug
the Hardware Key (ref HWSNK-1102U or HWSNK-1102P) on the PC before
starting the Activation Procedure.

Please retain this Certificate for your files, as it is required for
proof of valid purchase.
```

```
**********************************************************************
*******

SALES ORDER         : DATAMAX/1234570
MCL REF NBR         : DATAMAX/1234567891250
CUSTOMER ID         : DATAMAX/12345680
CUSTOMER NAME       : MCL Technologies
CUSTOMER ADDRESS    : Chaussee de Bruxelles, 572
                      1410 Waterloo
                      Belgium
                      marketing@mcl-collection.com
DISTRIBUTOR ID      :
PRODUCT CODE        : SMM-24 601 1010-1
DESCRIPTION         : 1-2-3 Print
QTY                 : 1

ITEM #   LICENSE NUMBER             PASSWORD
------   ------------------------   --------

1        2460-1101-0155-0000-5400   QUACKPVR

**********************************************************************
***********

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confidential and may be legally privileged. They are intended solely
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The content of this e-mail or any file or attachment transmitted with
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disclosure, alteration, printing, circulation of transmission of, or
any action taken or omitted in reliance on this e-mail or any file or
attachment transmitted with it is strictly prohibited and may be
unlawful.

If you received this e-mail in error, please notify MCL Technologies
by e-mailing: marketing@mcl-collection.com.
```

Appendix B – Datamax Printer Setup

General introduction

In order to monitor and control your Datamax printer using 123 Print, you must first perform some setup operations on your Datamax printer.

MCL ID and Group ID

Firstly, you must set up an MCL ID and Group ID on your printer. On the **Datamax printer**:

1 Go to the MCL System Menu
2 Scroll through the Menu until you reach **Setup**, press the Ent ↵ button on the printer to enter Setup.
3 Scroll through the Menu until you reach **Device ID**
4 Use the printer Fwd ↑ button or Rev ↓ button to increment or decrement the existing value respectively.
5 When you reach the value you want, press the Ent ↵ button on the printer to apply the value.
6 **Make a note** of this **Device ID**. This is the **MCL ID**. You will need it to set up 123 Print as described in Section 7.1 – Connect/Disconnect Printer.

7 Scroll through the Menu until you reach **Group ID**
8 Use the printer Fwd ↑ button or Rev ↓ button to increment or decrement the existing value respectively.
9 When you reach the value you want, press the Ent ↵ button on the printer to apply the value.
10 **Make a note** of this **Group ID**. You will need it to set up 123 Print as described in Section 2.3.2 – MCL Connection.

Printer IP address

Next, setup your printer for Serial or Ethernet communications.

On the MCL Agent Port:

11 Select Ethernet or Serial. This setting is the physical means of connection you intend to use to connect to your printer as described in Section 7.1 – Connect/Disconnect Printer.

If you setup the printer for Ethernet communications, setup static IP addresses for your printer.

12 Go to the **Datamax Menu Mode**
13 Scroll through and select **Communications**
14 Scroll through and select **NIC adapters**
- o Scroll through, select and setup an **IP Address**
- o Scroll through, select and setup the **Subset mask**
- o Scroll through, select and setup the **Gateway address**

15 **Make a note** of the **IP Address**. You will need it to set up 123 Print as described in Section 7.1 – Connect/Disconnect Printer.

The Host IP address can be setup on the printer, or in your 123 Print project.

TCP Port

16 Setup the desired TCP Port (typically 3000 or 9100).

Others

If you want to use barcode scanners, keyboards, weight scales or other peripherals for input/output to/from your 123 Print project,

17 Setup the keyboard, serial communications ports, dual serial configuration, etc. to match your project requirements

Appendix C – Supported Datamax Printers

List of Printers that 123 Print v1.1x supports

- A-Class
  - A-4212
  - A-4310
  - A-4408
  - A-4606
  - A-6212
  - A-6310
- H-Class
  - H-4212X
  - H-4310X
  - H-4606X
  - H-6212X
  - H-6310X
  - H-8308X
  - H-4212
  - H-4310
  - H-4408
  - H-4606
  - H-6210
  - H-6308
- I-Class
  - I-4210
  - I-4212
  - I-4308
  - I-4406
  - I-4604
- M-Class
  - M-4208
  - M-4306
- W-Class
  - W-6208
  - W-6308
  - W-8306

Appendix D – System Requirements

General introduction

This appendix provides the minimum requirements to run 123 Print v1.1x.

Operating systems supported

Windows XP
Windows 2000
Windows 98

Server

Specification	Windows XP (min / recommend)	Windows 2000
Processor speed (MHz)	233 / 300	133 or higher
RAM (MB)	64 / 128	64
Free hard disk space (MB)	100	100
Display	800 x 600	VGA or higher

Specification	Win98 (min / recommend)
Processor	486DX 66MHZ
RAM (MB)	16 / 24
Free hard disk space (MB)	100
Display	VGA or higher

Communications interface

123 Print supports three physical means of communication with the Datamax printers

- Serial Com
- Network (Ethernet)
  - TCP/IP and UDP protocol stacks
  - Ports 3000, 9100, 5001
- Parallel

Datamax Printer firmware

V1.20 or greater

Label Format

123 Print requires labels to be in one of the following formats:

- *.txt (a text file containing DPL code)
- *.dpl
- *.btw

123 Print has been developed to integrate with Seagull Scientific's BarTender Enterprise Edition software V7.72 or greater (separate license required; license not included with 123 Print license).

Other label design software may be used providing it provides labels with the format *.txt, *.dpl or *.btw.

Seagull Scientific's BarTender (optional)

BarTender Enterprise Edition V7.72 or greater – installed and activated

Appendix E – Mapping Label Graphic Elements

General introduction

Section 3.3.3 – Mapping introduces you to the mapping of variable content to elements on a label. That section mentions some restrictions related to the mapping of graphic elements on a label.

This appendix explains the reason for these restrictions and gives some ideas for you to achieve the results you want, despite these restrictions.

Replace By

Section 3.3.3 – Mapping states the following:

Replace By allows you to associate your different Variables with the label elements, so that what is stored in the selected variable(s) will replace the original label data at the time of printing.

Simply double-click in the **Replace By** column on the element you wish to replace and select the **Variable** or whose content should be used instead of the original default data. You may also enter a fixed value instead of a variable.

If you want to replace a graphic image, the variable should contain the name of the graphic image as it is called on the printer after being downloaded to the printer.

Note: If you are using BarTender to create your labels and if you want to map a variable graphic image to a graphic element on a label, be sure the label only includes one image. Use native fonts. For barcodes, choose the Print Method option: “Bar codes and human readable text controlled by the printer.”

These restrictions do not apply to labels that have a unique DPL code line per graphic image.

Understanding the restrictions

The graphic mapping restrictions mentioned above are imposed by the way Bartender treats images on a label.

BarTender concatenates multiple images together into one large graphic image. This makes it impossible for 123 Print to do a one-to-one mapping of a single graphic element.

Furthermore, BarTender treats true-type fonts and barcodes controlled by BarTender as images. Consequently, if you use true-type fonts or if you select a different Print Method than the one recommended, BarTender will also concatenate these elements with any real graphic element on your label. Again, this makes it impossible for 123 Print to do a one-to-one mapping of your real graphic element.

Suggestions

Assuming that, to eliminate unnecessary “images” from your label creation, you use native fonts and the recommended Print Method, you may still find that you want two graphic elements on your label:

- Your company logo
- A variable image showing a picture of the item being labeled.

One way to achieve the desired result is to create your variable images to include the variable image plus the logo. In this way, whenever you replace the image, you replace both of the desired images.

Appendix F – Connectivity / Function Matrix

General introduction

Datamax printers offer three different physical connectivities for communicating with your host PC:

- Parallel
- Serial
- Ethernet

When MCL is running on a Datamax printer, MCL and Datamax share these ports. Depending on which engine—Datamax or MCL—has temporary ownership of a port, the protocol required to communicate with the printer varies.

- If MCL "owns" the port, the host PC application needs to communicate with the printer using what is called MCL mode.
- If Datamax "owns" the port, the host PC application needs to communicate with the printer using what is called DPL mode.

Whether the printer requires MCL mode or DPL mode at a given moment should not be of concern to you.

However, you do need to be aware of the impact this sharing has on the functions supported depending on the connectivity you choose.

The matrix below summaries the functions supported according to the printer Class and the physical connectivity being used.

	A, I, M and W-Class Printers				H-Class Printers		
Function	Connectivity				Connectivity		
	Parallel	Serial	Ethernet		Parallel	Serial	Ethernet
Load Firmware	V	X	V		V	X	V
Load MCL System Menu	V	X	V		X	X	V**
Load Fonts, Labels, Images, etc	V	V	V		V	V	V
Load MCL files (projects, etc.)	X	V	V		X	V*	V**
Send Printer Controls (Formfeed, etc.)	V	V	V		V	V	V
Send DPL Commands	V	V	V		V	V	V
Get Printer settings	X	V*	V		X	V*	V**
Monitor Printer status	X	V*	V		X	V*	V**

Where:

V = Valid option
V* = Valid option if in the MCL System Menu you set Agent Port = Serial
V = Valid option if in the MCL System Menu you set Agent Port = Network**
X = Invalid option

Example

As an example, consider the above matrix. On an H-Class printer, you can download Firmware over a parallel cable, but you cannot download an MCL System Menu over a parallel cable. This means that although you can download firmware, an attempt to download Firmware and MCL System Menu together will not succeed.

If you attempt to perform an invalid communication action, you will receive an “Operation Failed” dialogue box as shown here

If this occurs, verify that you have the appropriate physical connection for the desired action.

If the load action you have selected starts with DMX, such as DMX Load Firmware, and you are confident that you have an appropriate physical connection set up, yet the action is unsuccessful anyway, then check that the TCP port you have assigned in 123 Print setup matches the printer’s TCP port assignment (typically 9100 or 3000). See Section 2.3.1 – DPL Connection for more information.

- **MCL-Designer**
  High-productivity, horizontal development environment to create enterprise-ready, multimodal, data capture applications.

- **MCL-Link**
  Batch/ Point-to-Point, Serial:
  - Direct Connect RS-232
  - Modem
  - USB

- **MCL-Net**
  Real-Time/ Concurrent Users:
  Wireless
  - WLAN: WiFi, 802.11
  - WWAN: GSM, GPRS,
    Wired Ethernet

- **MCL-Bridges**
  - Host Applications
  - Back Office Applications
  - ERP: SAP
  - Warehouse Management (WMS)
  - ODBC: Oracle, Access, FoxPro, DB2, Excel, Sybase, SQL

- **MCL-Voice**
  Voice Recognition, Voice Synthesis

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